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## WORK OF THE NATIONAL BUILDINGS RECORD

THE Fifth Annual Report of the National Buildings Record marks an interesting stage in the development of this body in bringing it into closer co-operation with both the Royal Commission on Historical Monuments, with which it is sharing occupation of 37, Onslow-gardens, and also with the Ministry of Town and Country Planning, having its director, Mr. Walter H. Godfrey, F.S.A., F.R.I.B.A., and its deputy director, Mr. John Summerson, F.S.A., A.R.I.B.A., serving on the Ministry's Advisory Committee, which is, in addition, under the chairmanship of Sir Eric Maclagan, also the chairman of the N.B. Record. Thus the very closest collaboration with the Ministry is assured. Besides this, several workers have been transferred from the Record to the Ministry.

Then, moreover, there is an intimate connection with the Ministry of Works (Ancient Monuments Department) due to the fact that the chief investigator, Mr. S. J. Garton, who has the help of Mrs. Chalton Bradshaw, has been lent by this Ministry to the Record, whose work has thus become an important feature in the Government programme. In view of the considerable influence that it is now intended that the Record should exercise on the description and preservation of buildings of outstanding interest, it is interesting to note that Mr. W. H. Ansell (the vice-chairman) and seven other active members of the R.I.B.A. are on the Council of Management, and that this body takes a broad view of the scope of its studies, ranging from early times to comparatively recent buildings of merit.

The retirement, from the chairmanship, of Lord Greene has evoked the expression of the great obligation under which he has placed the Record for his unsparing personal efforts in commending the work of the Record, not only to the Government but also to the Rockefeller, Pilgrim and Leverhulme Trustees, who at his request made generous contributions to the funds. It has been indicated that the Treasury, which has made substantial grants in the past, contemplates a close association between the Record and the Royal Commission on Historical Monuments. As an earnest of this the two are already (as before mentioned) sharing premises, and in addition some services, but the position is made more definite in a recent revision of the Terms of Reference of the Commission, which is as follows: "We do further authorise and empower you to confer with the Council of the National Buildings Record from time to time as may seem expedient to you in order that your deliberations may be assisted by the reports and records in the possession of the Council; and to make such arrangements for the furtherance of objectives of common interest to yourselves and this Council as may be mutually agreed."

In view of the great value now placed by the Government on the work of the Record, it is desirable to give a brief explanation of the place this takes in the general programme for buildings of national interest. As its title implies, its objective is a "Record," and one that will be as complete and perfect as possible, of all buildings that have a claim to any type of special interest, whether artistic, archæological or historical. To ensure this the assistance of 20 local committees has been secured, though at present Wales and the north-western counties do not appear to be adequately represented.

Having decided on the claim of a building to inclusion, its function is regarded as the indication as fully as possible of its structure and character by description, photographs, measured and other drawings, together with old illustrations. To obtain these it is obvious that groups of trained workers in these crafts are required, and this is probably the more difficult part of the Record's work, and is carried through to a large extent by voluntary service. It is hoped that Schools of Architecture may be able to help with measured drawings, from which reproductions can be made. The present collection numbers about 266,780 photographs and drawings, including the greater part of the Courtauld Institute of Art Collection of negatives. Several other collections have recently been received and more have been promised as bequests. The whole is now being moved to 37, Onslow-gardens and will be accessible, with a card index for reference, to the official bodies interested, the representatives of authorised groups and the general public.

The Exhibition shown at the National Gallery in June and July, 1944, has since been touring the country under the direction of the Arts Council of Great Britain and has been received with enthusiasm at Bath, Birmingham, Bradford, Bristol, Cardiff, Cheltenham, Halifax, Hull, Leamington Spa and Luton; Colchester, Harrogate, Oxford and Huddersfield are on the list for the future. Duplicates of portions of the record have been supplied to Cheltenham, Newark, Hull, Kensington and Blandford, to supplement local collections. It is hoped, now that conditions make this more practicable and with the revival of local societies, to establish closer contact with provincial and other bodies interested in the record of architecture.

The value of this record to these bodies and associations can hardly be overstated. To have, easily accessible, accurate information on buildings of interest must facilitate the operations of Government Departments and such groups as the National Trust and local associations which aim at placing in the hands of the nation all the buildings for which such action is justified, or to take other steps controlling their preservation and use. The services rendered in this respect are listed as Government Departments, Local Government bodies, Exhibitions, Publishers and Authors, Students of Architecture and Sculpture, and of others, keeping the powers of the limited staff at high pressure in satisfying the numerous inquiries, for which, it is gratifying to hear, the appreciation of the help given has been most enthusiastic.

# NOTES AND NEWS

### Learning to Build.

MANY theories and criticisms are being aired in these days on the subject of architectural education. A really comprehensive school curriculum seems to be a thing upon which very few people agree. Every aspect of architectural practice is studiously considered, and if of any importance included in the programme; the whole field is, so to speak, turned over, and after that it is every student for himself. The one aspect—to many people the foremost in importance—which has received scant notice from curriculum builders in the past is practical training. A visit to London's L.C.C. School of Building at Brixton by the leaders of our architectural schools would do much to convince them that here is a system which goes to the root of the trouble and does much to cure it.

A student spends a certain amount of time in actually working at every trade—bricklaying, masonry, plumbing, carpentry and joinery, plastering, and so on, thus acquiring at the outset of his career an invaluable asset—first-hand knowledge of work he will for the greater part of his life be presenting on paper and in the form of specifications.

This school is probably the nearest approach we have in this country to Professor Gropius's famous Bauhaus, which received the acclaim of almost every architectural teacher in this country, but whose lessons appear to have been appreciated by very few. Practical training in the past would have done much to purify our sense of design, for no architect would, if his ideas were backed by really practical first-hand knowledge of his craft, include the unnecessary excrescences which have been such a feature of some of our architecture.

Our Polytechnics in London have started a practical course for students, and are producing some very impressive work, but the L.C.C. School of Building, that outpost of building craft, although probably unable to boast of a Rome Scholar among its past students, at least has put many thousands of young architects and builders well on the path to sound, honest building.

### Tributes to a Master.

A CONTINENTAL architect has written to us asking whether the work of Gunnar Asplund, the Swedish architect, has had any influence over here. This question of influence in architecture is a difficult business to analyse. Individual buildings may present a likeness in form and feeling to various schools abroad, but as English architecture in the last forty years has been so incredibly variegated in its styles and sources of inspiration, no one aspect can be said to have influenced the main stream of building to any major extent. Its family tree in recent years would be represented by a much branched and foliaged affair which could in the past, and probably will in the future, do with a great deal of pruning.

Gunnar Asplund, who died at the start of the European war, did have a certain influence in this country, not so much in architectural form as in decorative form. His sensitive details have been assimilated by a few discerning architects, and show in some of their best work. Perhaps the R.I.B.A. Building comes nearest to giving us an idea of the benefit of a careful study of the Swede's work, although Mr. Grey Wornum is one of our most individual designers. Mr. Howard Robertson, in "Architecture Arising," includes Asplund with the International Functionalist school of le Corbusier, Gropius, Lurçat, etc. This is slightly surprising; work like the exquisite "Skandia" cinema in Stockholm (admittedly an early work in his career) or his last and perhaps greatest achievement, the Crematorium of the Forest Cemetery at Enskede, near Stockholm, has such a beautifully balanced note of the Swedish romantic tradition infused into it that to claim him as a member of the International Functionalists would be to include in their midst an architect whose genius was to express in his work his country's history and tradition.

### Architectural Science Board Lecture.

THE next Architectural Science Board lecture will take place at the R.I.B.A. on Wednesday, October 9, at 5.45 p.m., when Mr. M. Hartland Thomas, F.R.I.B.A., will deliver a lecture on "Technical Investigations in Germany." Among the subjects the lecturer will deal with will be autobahn bridges; autobahn planning; canals, river improvements, hydraulics; dimensional standardisation; lightweight concrete; payment by results; prestressed concrete; shell concrete; steelwork; timber; architecture; lattice retaining wall; rubble utilisation; power tools; building industry and research institutions; miscellaneous notes.

To develop the discussions which take place at the lectures it has been decided to print the papers for circulation before the date on which they are to be given. Copies of the lectures may be obtained two weeks before they are due to be delivered on application to the R.I.B.A. Editor, 66, Portland-place, W.1. A register will be kept at the R.I.B.A. of those who ask for copies of lectures or who express themselves interested in any particular lecture.

### Lectures on Office Organisation.

THE second of the informal lectures in this series will take place at the R.I.B.A. on Tuesday, October 22, at 6.30 p.m. The subject will be "Office Finance," and the speakers—two architects and an accountant—will deal with a wide range of problems which arise under this head. The following, we learn, have agreed to take part in the talks: Mr. Percy Burnett, F.R.I.B.A., Mr. A. M. Chitty, F.R.I.B.A., Mr. Brian Boys (accountant). Mr. E. D. J. Mathews, A.R.I.B.A., will take the chair, and the talks will be followed by a discussion.

Later in the session there will be two more informal lectures, at which the speakers will be as follows: "Partnership and Profit-sharing"—Mr. G. Grenfell Baines, A.R.I.B.A., and Mr. Raglan Squire, F.R.I.B.A. (chairman, Mr. H. V. Lobb, F.R.I.B.A.); "Architects to Public Authorities"—Mr. Hubert Bennett F.R.I.B.A. (West Riding County Architect); Mr. Kenneth Campbell, A.R.I.B.A. (Miners' Welfare Commission); and Mr. D. E. E. Gibson, A.R.I.B.A. (City Architect of Coventry) chairman, Mr. R. H. Matthew, A.R.I.B.A. (architect to the L.C.C.)).

### I.A.A.S. 21st Anniversary Dinner.

THE Incorporated Association of Architects and Surveyors will celebrate its 21st anniversary at a dinner to be held at St. Pancras Town Hall, on Monday evening, September 16. Many distinguished guests will be present, including five Cabinet Ministers, and representatives of the principal professional and other bodies connected with the building industry.

### Housing and Planning Conferences.

THE National Housing and Town Planning Council has arranged to hold a series of Regional Housing and Planning Conferences of Local Authorities in 11 different centres of England and Wales. The opening conference will be held in the Town Hall, Manchester, on Thursday, September 26. The subjects to be discussed include the Housing (Financial and Miscellaneous Provisions) Act, 1946; the design of dwellings; rural housing; town and country planning problems; and the New Towns Act, 1946. Full particulars of the arrangements can be obtained from the General Secretary of the National Housing and Town Planning Council, 41, Russell-square, London, W.C.1.

### An Appointment.

MR. J. CATCHPOLE, A.R.I.B.A., deputy county architect to the West Sussex County Council, has been appointed county architect to the North Riding County Council, Yorkshire.

## From *The Builder* of 1846

*Saturday, September* 12, 1846.

WESTMINSTER BRIDGE.—Workmen continue busily engaged in the removal of the upper part of the structure, in those parts where the arches have failed, but whether or not any competent person is directing the operations, we cannot say. Our impression from a recent examination is certainly in the negative; and we shall not be surprised, if the doctoring be continued much longer, to hear the bridge declared unsafe for traffic even while the new bridge is building.

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## COMING EVENTS

**Monday, September 16.**

THE INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS. 21st Anniversary Dinner. St. Pancras Town Hall. 6.30 p.m.

INSTITUTE OF QUANTITY SURVEYORS (London Branch). General Meeting. Alliance Hall, Palmer-street, Westminster. 6.15 p.m.

**Wednesday, September 18.**

LONDON MASTER BUILDERS' ASSOCIATION (Northern Area). Luncheon, Hendon Way Hotel, Hendon. Speakers: Mr. E. W. Garrett, President, L.M.B.A., and Mr. G. H. A. Hughes, Director.

**Saturday, September 21.**

ECCLESIOLOGICAL SOCIETY. The Rev. T. H. Croxall to speak on "The Anthem: Its History and Justification." Archbishop Davidson Institute, Lambeth-road, S.E.1. 3 p.m.

**Tuesday, September 24.**

THE ENGLISH JOINERY MANUFACTURERS' ASSOCIATION. Dinner at the Savoy Hotel, Strand, W.C. 7.15 p.m. for 8 p.m.

# CORRESPONDENCE

## "The Registration Act and its Operation."

To the Editor of *The Builder*.

Sir,—Owing to absence from the office on holiday, I had not read Major Athoe's comments in your issue of August 16 until now. If I unwittingly implied that the I.A.A.S. and I are on the side of the "goats," the "indifferent," etc., on the principle of "live and let live," I must apologise, since, in drawing attention to what I consider an inescapable factor, and one which must perforce temper all consideration, no such implication was intended. No suggestion, either, was intended or given that the principle of "live and let live" should "govern" admission to the Register.

In being so emphatic over this last, does not Major Athoe also fall into the pit of intolerance? The crux of the problem, in brief, is: A test for the Register has to be imposed, and the candidate has to satisfy. One section seeks the whole right of setting and imposing the test, and another is precluded.

Why it should be so is impossible to understand, since there are several bodies already imposing tests of different standards, from the University downwards. However, with the politics of this matter I am not so much concerned as with the lamentable diversion from things which really do matter.

London, N.10. N. Martin-Kaye.

## Longevity Among Architects.

To the Editor of *The Builder*.

Sir,—The entertaining article by "H.V.M.R." in your issue for August 30 gives architects hope of living to a ripe old age, for, though only one centenarian is cited, several nineties are mentioned, and eighties abound. To the nineties must now be added the name of George Edwards, F.R.I.B.A., J.P., whose death at 91 is announced. In making this announcement, however, under the heading "Put Sultanas in Cakes," it would appear that the "Star" regarded Mr. Edwards's position as chairman and managing director of the A.B.C. from 1901 to 1910 and his claim to have suggested the use of sultanas in cake-making to be of much more importance than any buildings he designed. It was probably far more remunerative. He left £100,850.

Balbus.

## Official Service and Private Practice.

To the Editor of *The Builder*.

Sir,—May I draw the attention of your readers to the numerous advertisements for architectural and surveying assistants that have been inserted in the architectural Press during the last two years, both by the Central Government and the local authorities.

The reason for this apparent but illusory shortage of architectural skill is not far to seek. It is the deliberate refusal for the most part of these authorities to engage architects in private practice to implement their programmes.

Private architects, whose clients in the past have been drawn mainly from industry and the general public, are generally short of work at the present time owing to the restrictions now imposed upon private building work. They have, however, no intention of giving up their practices in answer to these advertisements to add to the already swollen ranks of bureaucracy, a course which in the long run would prove harmful not only to the profession itself but also to all forms of architectural taste and advancement.

Individual architects must not advertise for work, but it should not be impossible for the authorities to co-operate more fully than is done at present both with the R.I.B.A. and the Incorporated Association of Architects and Surveyors to end this very unsatisfactory state of affairs with beneficial results to all concerned.

E. Walcot Bather, A.I.A.A.

## "Unity in the Building Industry?"

To the Editor of *The Builder*.

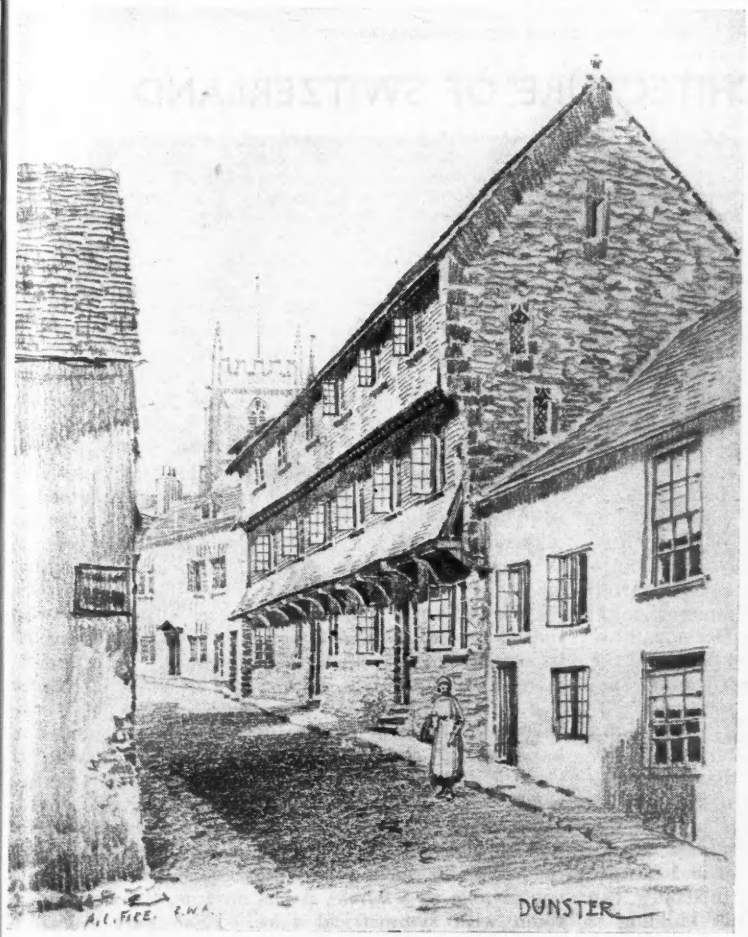
Sir,—My letter, which you kindly published in your issue of August 30, was written in a private capacity and not as an officer of an association, in the hope that builders would consider impartially whither they were going in dividing themselves into two camps.

If the purpose was for propaganda by the L.M.B.A., as Mr. Venning suggests, he has himself provided it by being unable to refute the fact that much of the information contained in the Federation of Master Builders, Ltd., bulletin was provided through the efforts and at the expense of the body of which I have the honour to be vice-president.

For 75 years, the "few" to whom Mr. Venning refers have provided, in conjunction with the other responsible bodies engaged in the industry, the only stabilised working conditions and wages, which have been accepted by the "many" without fee or acknowledgment.

Surely anyone who infers that such an organisation has "not done its job" or is a "dormant body" is only attempting to mislead the uninformed.

London, E.C.2. Philip Smallwood.




DUNSTER. From a pencil drawing by A. C. Fare, R.W.A.

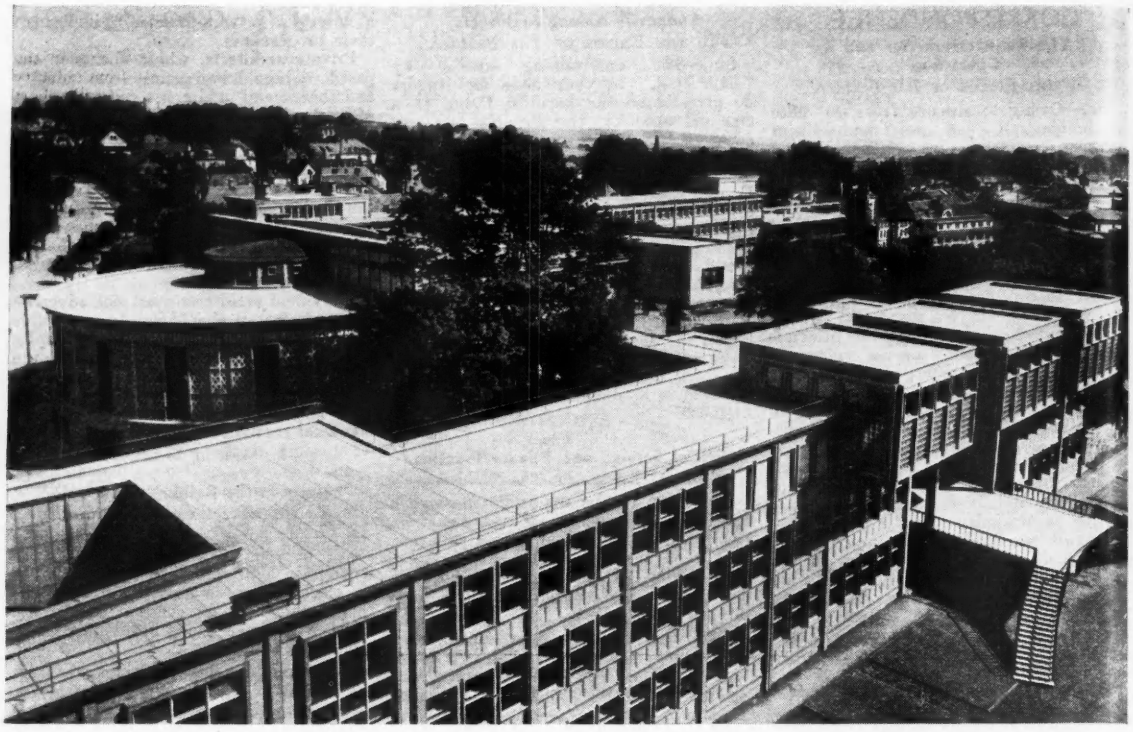
# COMPETITION NEWS

## Extension of County Buildings, Cupar.

The County Council of Fife invite architects of British nationality resident in Scotland to submit designs for alterations and extensions of County Buildings, Cupar, Fife. The assessor is Mr. A. G. R. Mackenzie, F.R.I.B.A. Premiums of £500, £300 and £200 are offered. The last day for submitting designs is March 31, 1947, and the last day for questions November 15, 1946. Conditions may be obtained on application to J. M. Mitchell, County Clerk, County Buildings, Cupar, Fife, on deposit of £1 1s.

## Bus-Passenger Shelter for L.P.T.B.

Architects are invited by the London Passenger Transport Board to submit designs in competition for a bus-passenger shelter, to replace the present utility wartime model. A first prize of £300 and a second prize of £100 are offered. The assessors are Professor W. G. Holford, A.R.I.B.A., M.T.P.I.; Mr. F. R. S. Yorke, F.R.I.B.A.; and Mr. Thomas Bilbow, F.R.I.B.A. The last day for submitting designs is January 8, 1947. Conditions of the competition are obtainable from the Chief Public Relations and Publicity Officer, 55, Broadway, S.W.1.



NEW UNIVERSITY, FRIBOURG. DUMAS AND HONEGGER, ARCHITECTS.

# THE NEW ARCHITECTURE OF SWITZERLAND

*An Exhibition of Swiss Planning and Building will be open at the R.I.B.A. from September 19 to October 26. The following article, by Professor Dr. Ernst Egli, gives some indication of the philosophical outlook of contemporary Swiss architects, which has found expression in the interesting developments that have taken place in Swiss architecture during recent years. The illustrations show typical examples of current work which, taken as a whole, is remarkable for its freshness of character and technical excellence.*—ED.

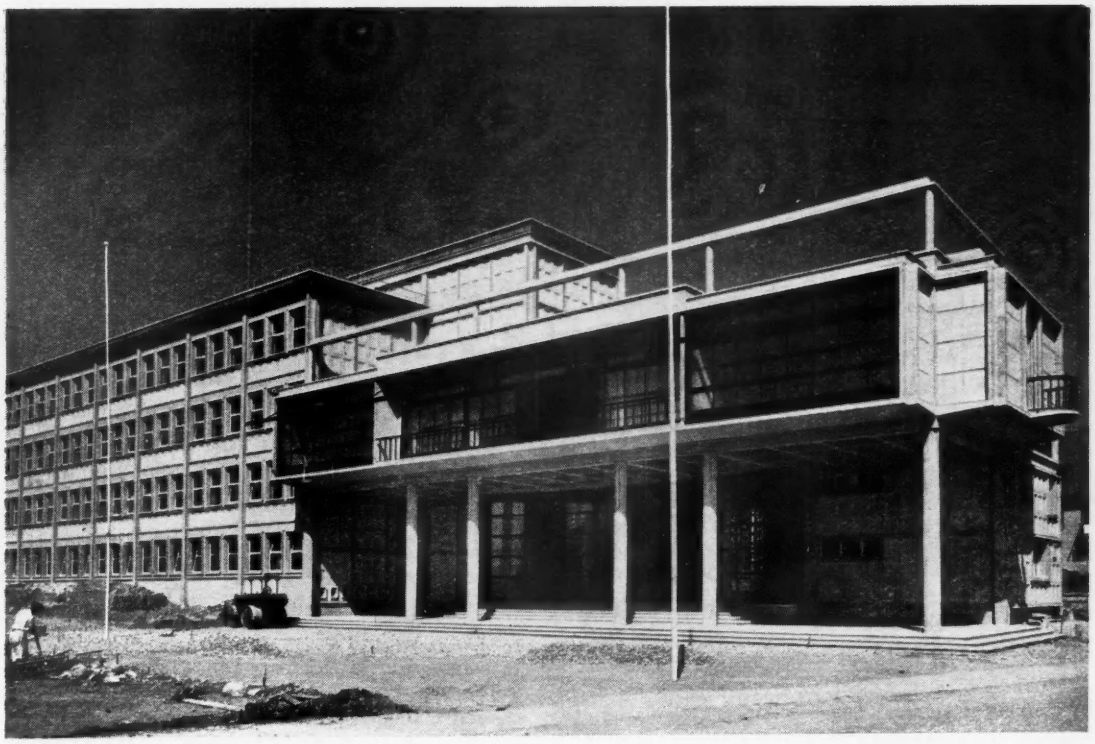
THE ARCHITECTURE OF SWITZERLAND IS WHAT architecture everywhere and at all times has been : a faithful mirror of social conditions. It is, perhaps, an even truer mirror than elsewhere because it represents the ideals of the people to-day more than ever. Architecture in Switzerland has at no time been the expression of the pomp of a court or the business of a ruling race or ruling class. The outstanding feature of Switzerland is that motley and strongly individual elements combine in a cultural and national unity. This statement can be the motto of a short review of its architecture, too.

The architecture of Switzerland is very varied. It has its roots in the south, west, north and east of the country on either side of the border. It is a matter of course that his sense of form should connect the Latin Swiss with the development of architecture in France or Italy ; just as it is a matter of course that the German Swiss should develop German character in his style for all the pleasure he takes in Latin forms—and in this he does only what the roots of his being compel him to do.

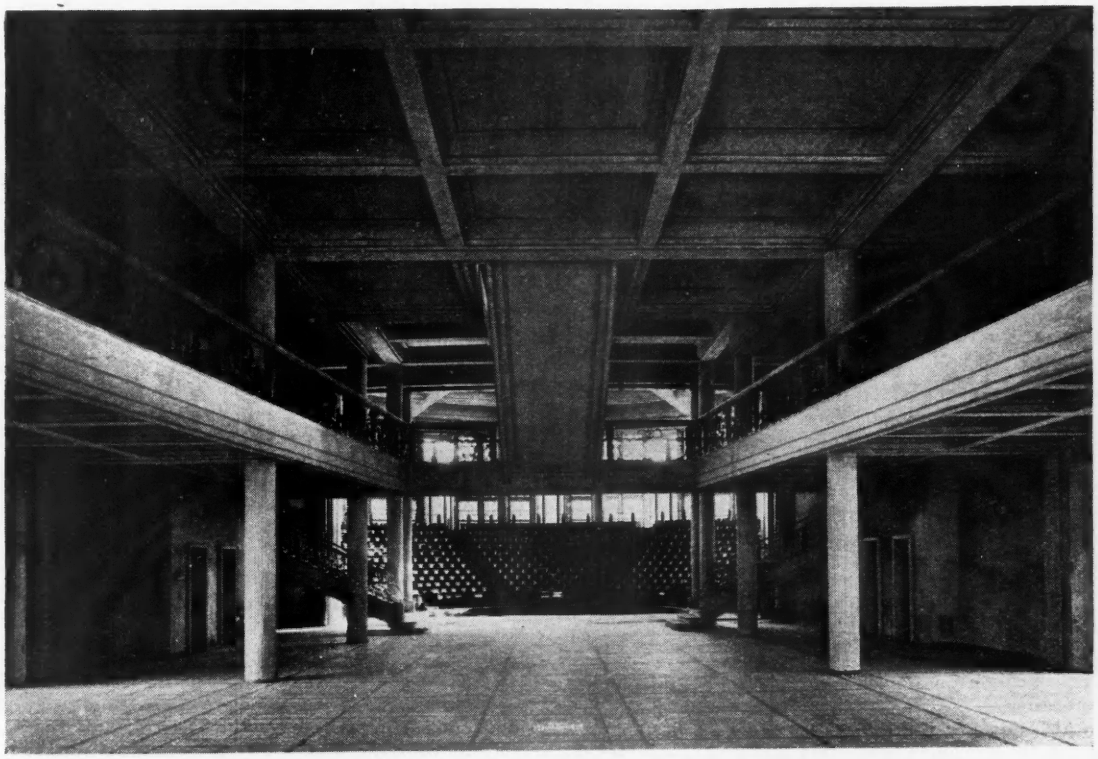
If a taste for rational conceptions, for organic and harmonious shapes is considered a Latin, and particularly a French, characteristic—a tendency that expresses itself in regular features, in architectural axes, in increased dimensions, also in balanced proportions, in elegance and wealth and in witty formulations—we may call the Latin Swiss a true Latin in his architecture too. The building of the University of Fribourg can serve as an example (pages 264-5). This building is witty and remarkable in layout and details. It sets axes and interrupts them. It strikes chords of formal motives and proportions and resolves them in different variations. In short, apart from adequately fulfilling its function the building succeeds in creating a combination of shapes with laws and life of their own. It embodies an impulse whose roots reach as far as Paris.

The same applies to the German part. A certain restlessness in their sense of form is characteristic of Germans at all times. The German ceaselessly searches for perfection. He misses a good solution in his search for a better one. He likes the irrational in the interplay of light and shadow. He likes movement not for the sake of ultimate rest, but for the sake of movement. Or again, he would give up all such striving and straying into the distance and confine himself in spirit to the narrow world of his kin, the boundaries of his village and the homely landscape. This is unmistakably the psychological subsoil on which the tensions of the German-Swiss architecture develop. Their architects are called Faust or Hans Sachs.

The development of a form from the function of a building, the choice of a material with a view to its use, the desire to finish every part to the utmost perfection can lead to a unity that is unconcerned with conventions, witty in details full of ideas, which arrest, surprise and thrill the onlooker. The *Kongresshaus in Zurich* (page 267) is such a building. Visually it is hardly conceivable as a whole, it has no axis, it hardly has a room with symmetrical sides. Each part seems to know only its own purpose. There is no scale or



Entrance to the Chapel. *Below:* View looking into the Great Hall.



NEW UNIVERSITY, FRIBOURG. DUMAS AND HONEGGER, ARCHITECTS.

geometrical shape or idea of space that visibly rules the composition. This building gets meaning and scale only through the people who celebrate in it one or the other festive occasion of their communal life. The room is nothing but a shell, it does not enforce on people any special mood or atmosphere except the atmosphere of unformal festivity itself. The festive crowd fills this building like an irrational fluid. Reasoned purpose thus leads the architect to discover the irrational. This is the architecture of Faust—a strong contrast to the conception of the Latin architect, who builds above the irrational a world of law and measure, and bridges the abyss by means of reconciling forms.

Besides Faust the spirit of Hans Sachs is also in the German-Swiss architect. He has a leaning towards things that are artistic without artifice, homely and cosy, modest but attainable, simple and charming. There are a number of country churches and country houses which represent this conception in a creative way by new means, but in the good proven spirit of the old guilds. They are not the loudest voices, but it is they that give the great orchestra of Swiss architecture fullness of tone and peaceful harmonies. The many good examples of real and sincere folk art take care that insincere and unoriginal commercial art has no chance to flourish.

The multiplicity of Swiss architecture is, however, by no means exhausted with all this. The Italian voice of the Tessin and the more earthly tune of the French cantons blends with its polyphony.

We all enjoy again and again the clear articulation, the harmony, the eternal sublimity of the Italian conception of form. It seems to exclude any caprice, anything accidental. The magic of beauty lends all a timeless character. And this timelessness provides a scale for the finite and gives men a sense both of the monumentality of the unearthly and the loveliness of earthly things. A simple formula seems to articulate the building and life itself and to assign to every part its function. The architects of the Tessin have a grasp of this formula to-day as well as in their glorious past. A charming example of it is the cantonal library in Lugano, by C. and R. A. Tami. Its masses are clearly articulated, each part preserving its character and keeping the distance necessary for an individual existence. The book depot, the wing of the reading room, the round staircase, the sculpture on the façade, the fine rhythm of the window front of the bookstore with the clear separation of window openings can hardly be surpassed. The same proportion binds the part into the whole and makes the horizontal and the vertical shape akin.

But the character of Swiss architecture is not exhausted by a mere juxtaposition of the national conceptions. A common spirit extends over all this multiplicity and gives us the right to speak of a Swiss architecture. The possibility of this common attitude leads to the comforting realisation that our common humanity transcending national limitations can create a community.

There are things to which every Swiss reacts in exactly the same way on any side of any linguistic boundary. Jealous preservation of his own fundamental rights and recognition of those of his neighbours exclude any claim for domination of the whole by any part or even of a minority by a majority. He is accordingly averse to high-sounding language, proud and pompous gestures and the display of privileges or mere show. He also despises self-divination, whether individual or national. He sets against it a spirit to which the beginning of the first documents of the Swiss constitution can serve as a motto : " It is honourable work and serves the common good." In similar way Swiss town planning cannot display great compositions of the scale of the Ringstrasse in Vienna or Haussmann's layout in Paris. But Switzerland does not know either the two evils that cast their shadow over the princely town planning of Europe : housing shortage and the slums. It is not the extraordinary and exceptional that should set the scale, but the ordinary and the universal. Wherever the Swiss have erected ostentatious buildings—for example, the hotel buildings at the beginning of this century—they are always insincere and alien to our Swiss nature.

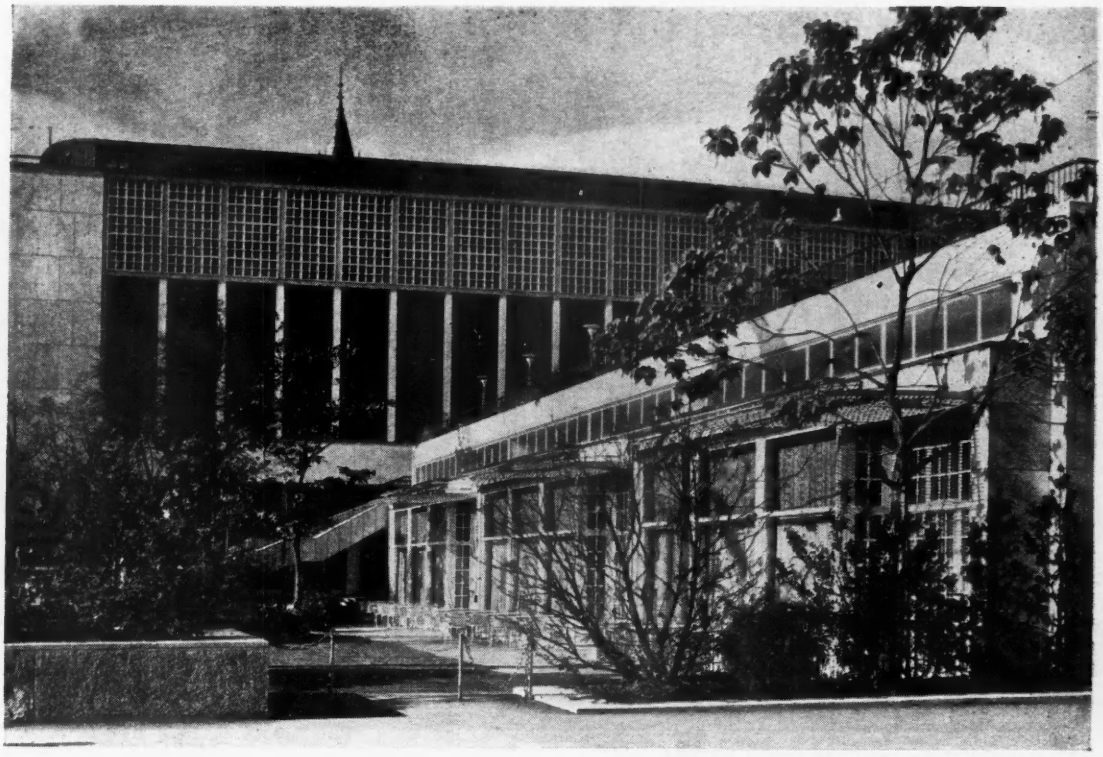
Swiss architecture is at its best in school buildings (page 269), hospital buildings, factories, town halls, churches (pages 268 and 270), and domestic buildings (page 271). The need for the erection of sufficient sound and homely dwellings is a subject of general interest and the contribution of the authorities to this need is very great. Space does not permit me to enlarge on this topic. I refer only to the pamphlet of the " Hochbauamt " Zürich : " Der soziale Wohnungsbau und seine Förderung in Zürich 1942-1945." Verlag für Architectur, Erlenbach-Zürich. The Swiss citizen always grants the necessary money with his vote for the type of buildings mentioned before so that they may become " honourable work for the common good." He is proud of his civic buildings. Anybody with eyes to see may notice the difference between the inspiration which erected these buildings, which were originated by the civic spirit of the working people, and those erected under the stimulus of the profit motive. I am referring here especially to very many cinemas, restaurants and amusement centres.

What then is common to all the new Swiss architecture ? The following qualities : a special regard for the landscape, a free grouping of clear and simple building units with no reference to monumentality or showy appearance, a sober but cheerful and artistic solution of the functional problem, fine technical finish and good craftsmanship in details and, finally, a sacrifice of everything that is not functional, everything fashionable and merely ornamental.

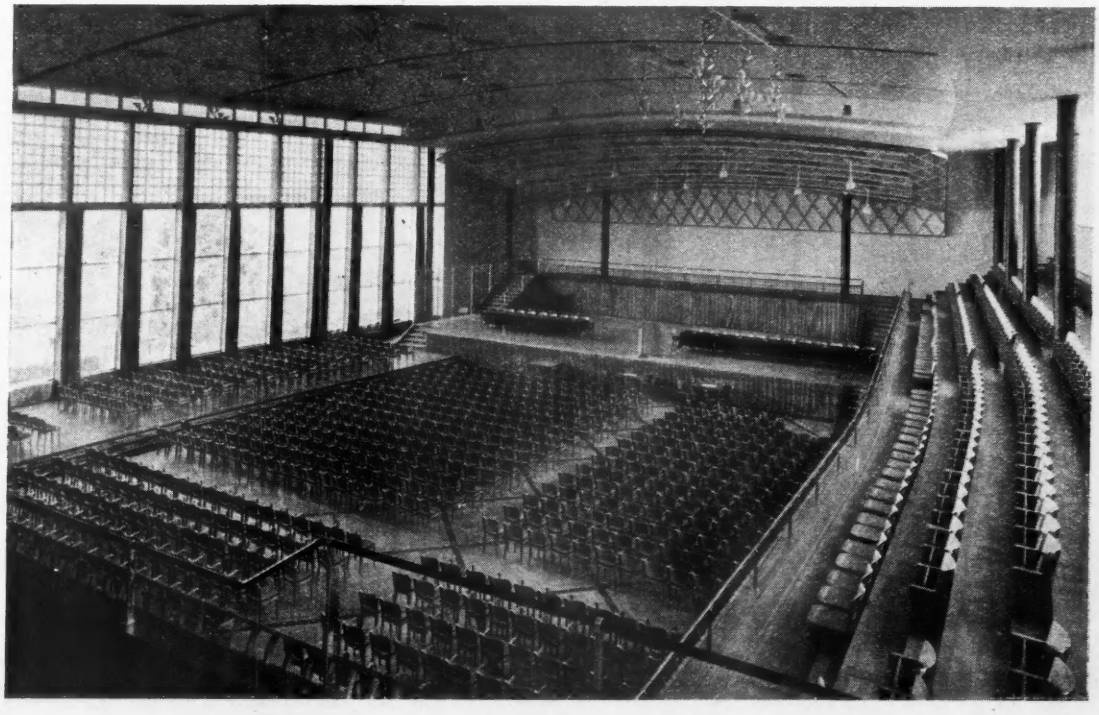
Special regard for the landscape expresses itself in the manner in which every building is carefully and modestly placed in, and subordinated to, the landscape. The big and monumental scale of the Swiss landscape permits no disregard by man or building of their modest scale in the presence of nature. No building can erect a world for itself in this landscape and compete with the natural surrounding by means of great axes, perspectives and similar effects. Swiss architecture is servant and not master of the landscape ; it is not the crown of the landscape but at its best a small jewel. The Swiss architect renounces any exaggerated and immodest attitude to nature and strives to raise his building naturally from the surroundings and, as it were, to think out the logical compliment to the natural features of the site. As the example of mediæval castles already shows, the attempt to fit practical needs into the logical scheme of the local surroundings leads naturally to the grouping of buildings.

In Swiss architecture the details are perfect in technique and craftsmanship as a matter of course. Herein the Swiss architect is only fostering his traditional way of building. Good craftsmanship is equally well understood and appreciated by the German and the Latin Swiss. On a common soil there grows a common spirit that is hostile to insincerity and external ornamentality.

(*Continued on page* 268)

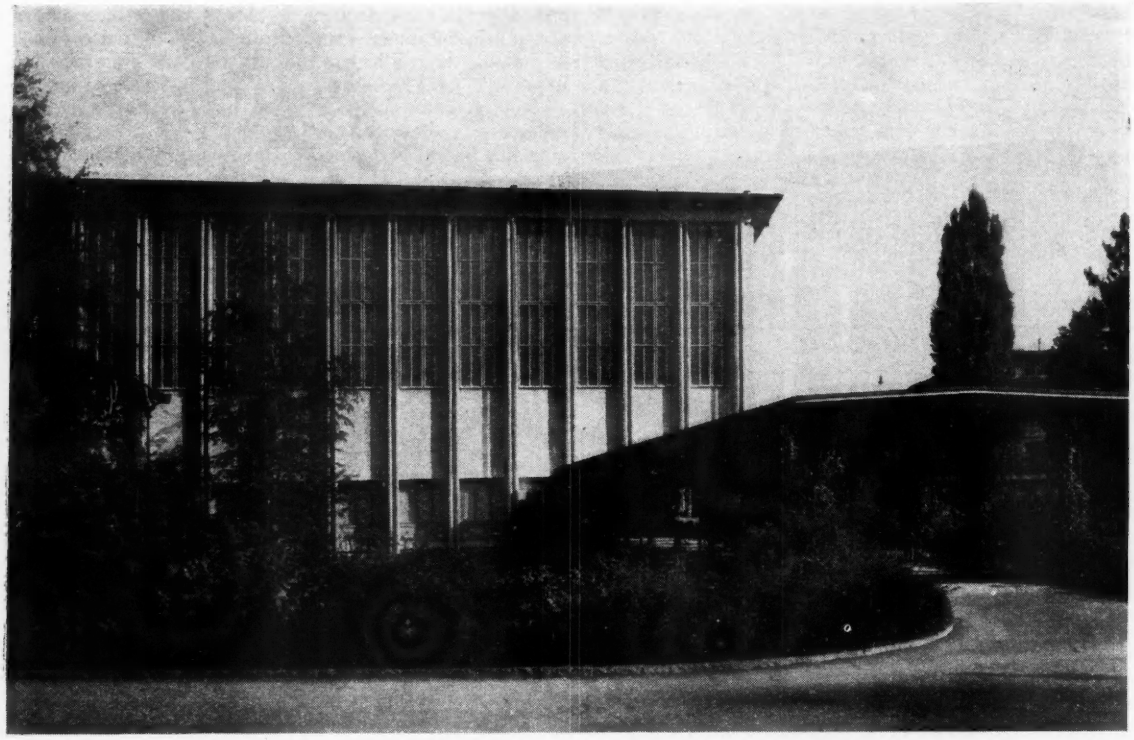


Flank Elevation.



The Great Hall.

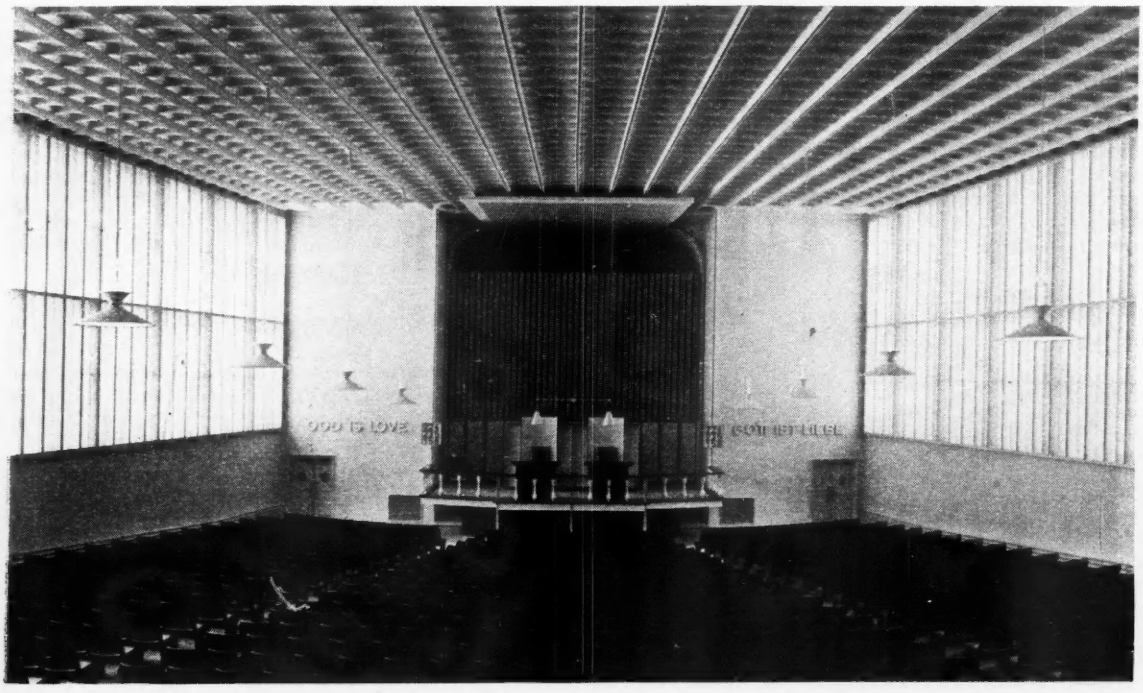
CONGRESS-HOUSE IN ZURICH. HAEFELI, MOSER AND STEIGER, ARCHITECTS.



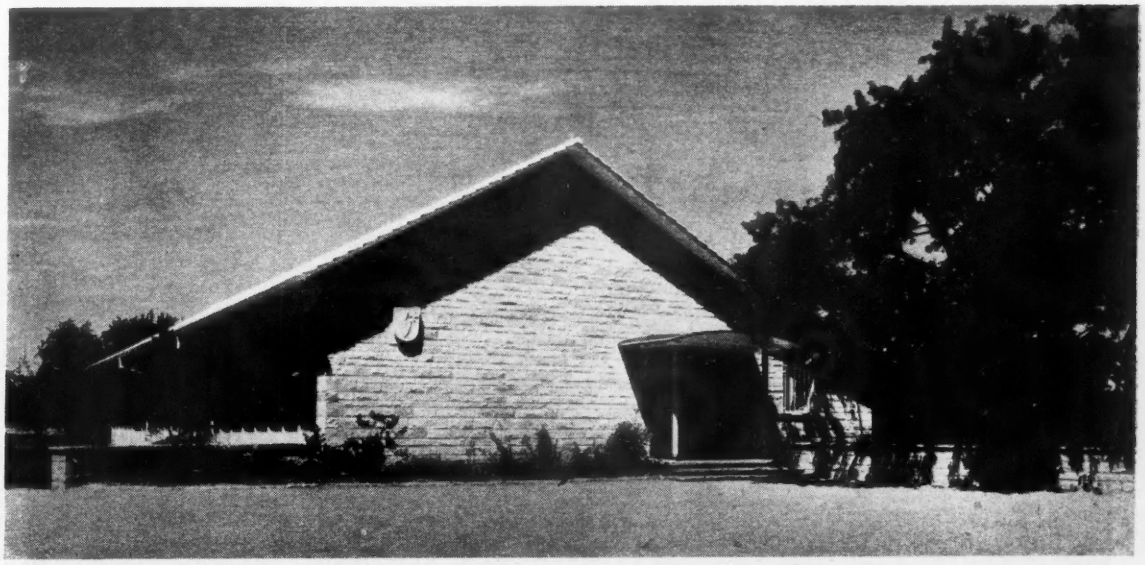
In sum, it may be said that Swiss architecture can be regarded as a unity and an expression of Switzerland. But it would not be a true expression of the country if it were not at the same time a true mirror of the colourful diversity of its people bound together in free alliance.

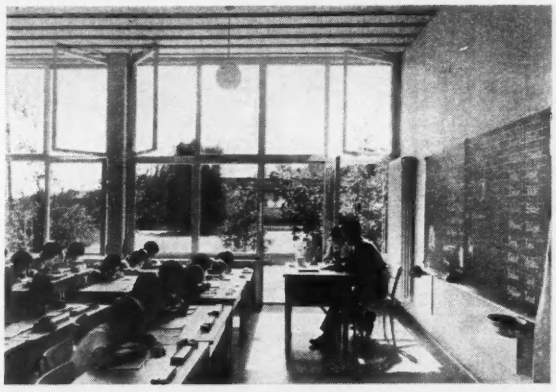
In the midst of Europe a multiplicity of nations and cultures has found a common architectural expression under the influence of a landscape and of a common humanist political ideal realised in their history. This is one of the few phenomena which support our faith that a solution of the national problems of Europe and the world, followed by a common reconstruction in the service of humanity, is possible, necessary and inevitable.

ERNST EGLI.



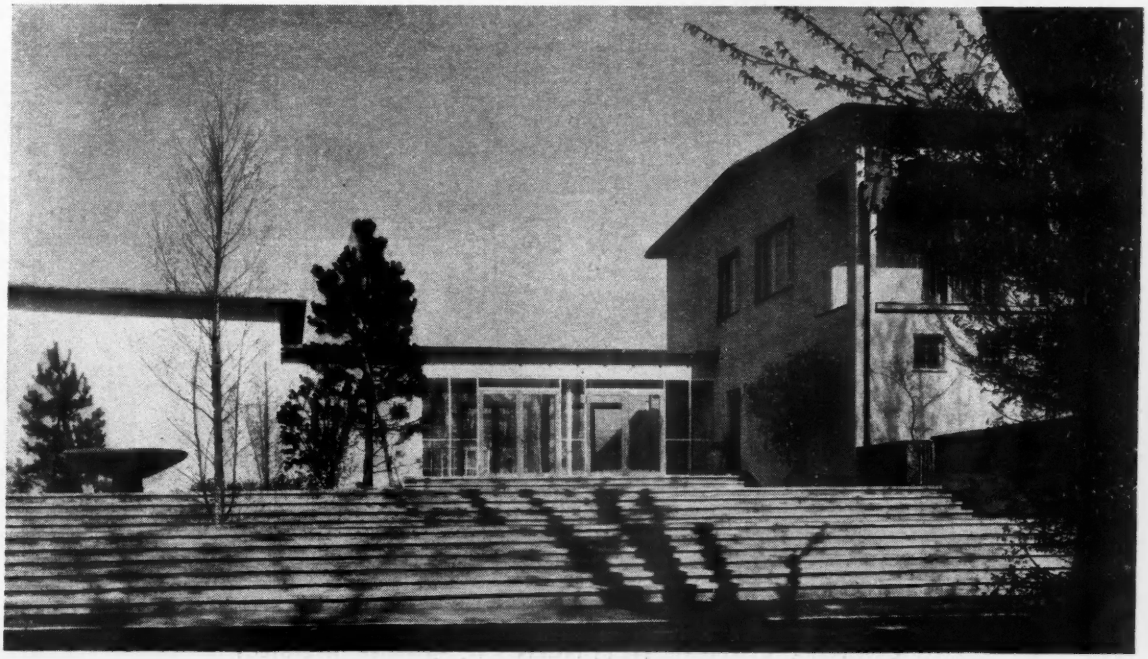
FIRST CHURCH OF CHRIST SCIENTIST, ZURICH. PROF. DR. H. HOFMANN, ARCHITECT.

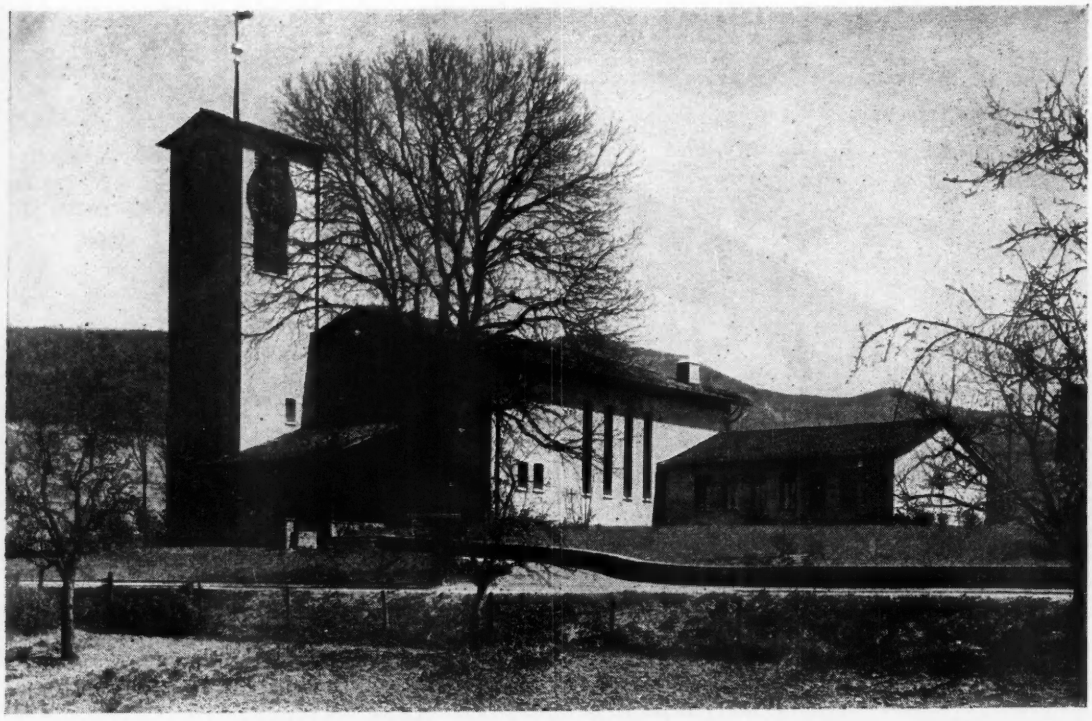


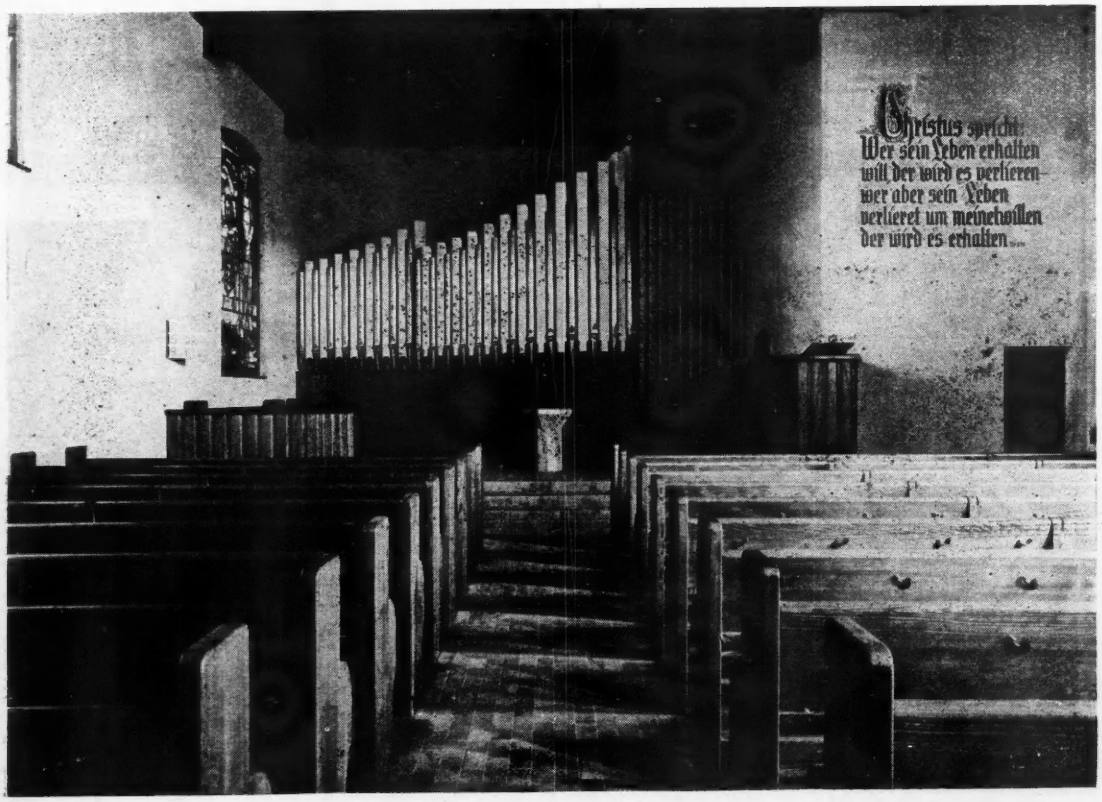


*Above:* OPEN-AIR SCHOOL IN ZURICH-SCHWAMENDINGEN. A. H. STEINER, ARCHITECT.

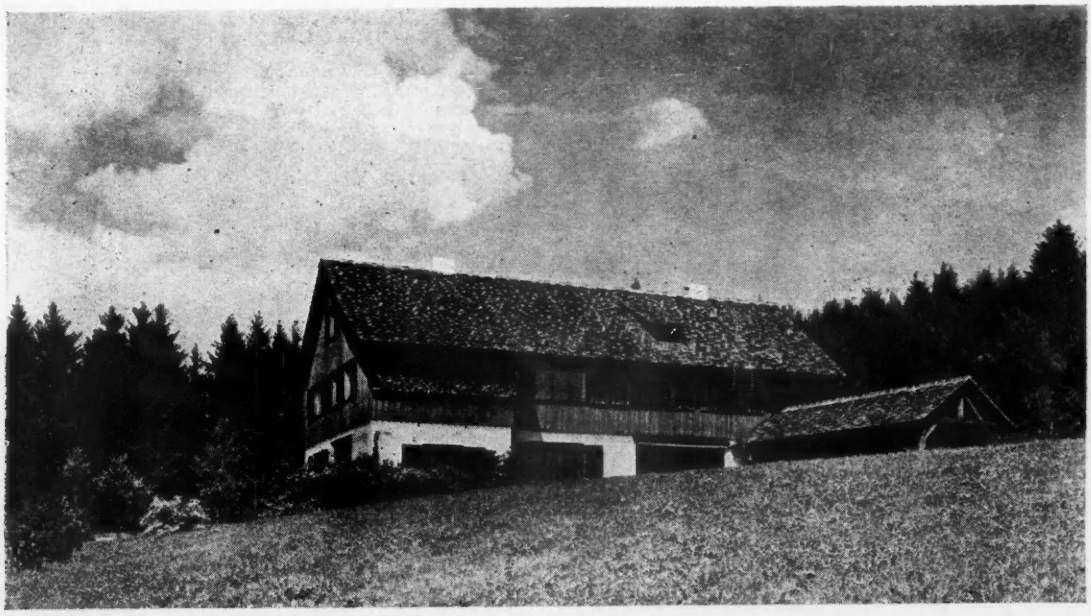
*Right and Below:* OPEN-AIR SCHOOL IN THE BRUDERHOLZ, BASLE. HERMANN BAUER, ARCHITECT.







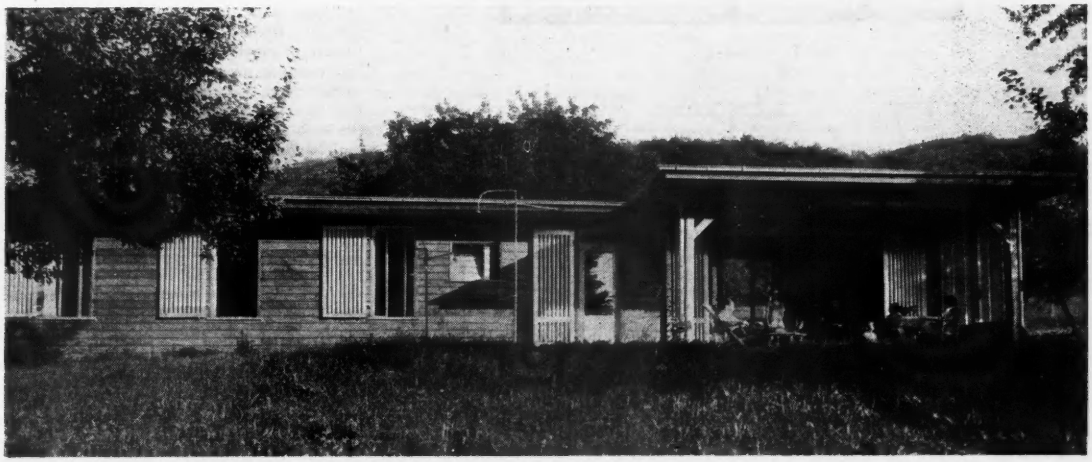

COUNTRY CHURCH, WETTINGEN. W. HENAUER, ARCHITECT.

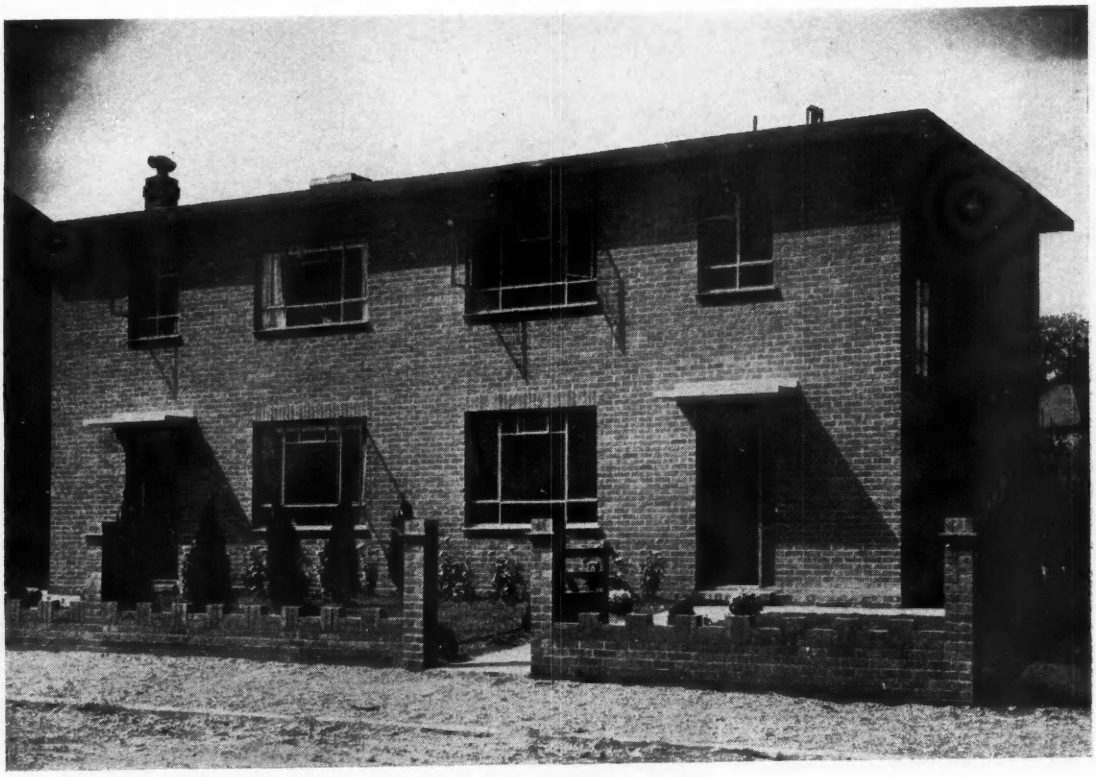


*Above :* COUNTRY HOUSE, REINSHAGEN-AM-PFANNENSTIEL. A. H. STEINER, ARCHITECT.

*Right :* HOUSING SCHEME, GWAD - IN - WADENSWIL. FISCHLI & STOCK, ARCHITECTS.

*Below :* SUMMER RESIDENCE, UNTERSEE. ALFRED ROTH, ARCHITECT.

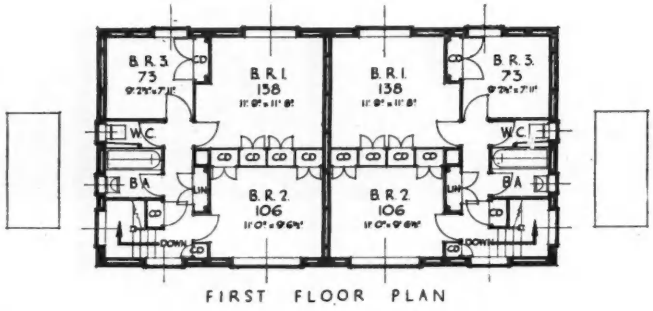




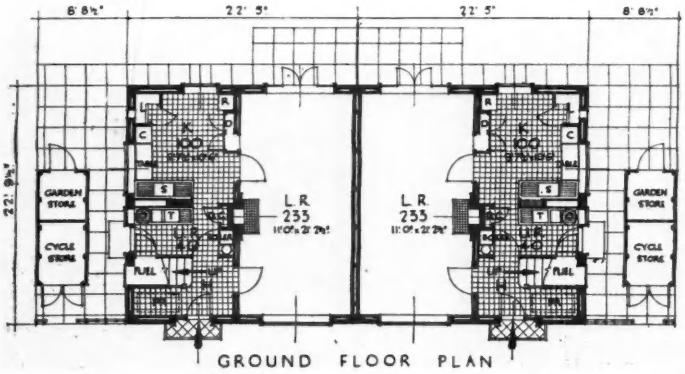
The Front Elevation.

# A PAIR OF HOUSES AT CHESHAM, BUCKS

## DENIS POULTON, Dip. Arch., F.R.I.B.A., ARCHITECT




FIRST FLOOR PLAN




GROUND FLOOR PLAN

THESE HOUSES WERE AMONG THOSE selected in the competition recently organised by the House-Building Industries' Standing Committee, to demonstrate new tendencies in the design and construction of the smaller type house. The houses have been specially designed for rural areas, and the external walls consist of two "skins," the inner one, built of precast reinforced concrete units of storey height and "room" length, being erected first. As this comprises the weight-carrying structure of the house, the roof—also of precast concrete units—can be placed in position within a day or two of commencing erection, thus providing protection from weather while floors and ceilings are completed and internal finishing proceeds. The outer skin is of sand-faced multi-coloured facing bricks.

Rainwater from the flat asphalt roof is carried away by a pipe encased, with waste and other pipes, in an internal duct. Grouping of the sanitary fittings has kept the service pipes short.

The living-room runs the full length of the house with french windows leading on to the tiled terrace. There is a service hatch between the living-room and the kitchen. Metal windows are fitted with wide angle hinges to facilitate cleaning from the inside. The houses were built by Messrs. Stewart and Partners, Ltd.

# TOWN & COUNTRY PLANNING SUMMER SCHOOL

THE Summer School on Town and Country Planning, under the auspices of the Town Planning Institute, was held this year at Durham University under the chairmanship of Mr. G. L. Pepler, C.B., P.P.T.P.I. The members were welcomed on September 1 by the Mayor of Durham, the Vice-Chancellor of the University and the chairman of the Durham County Council, after which the opening address was given by Mr. Lewis Silkin, Minister of Town and Country Planning. Papers were read during the week on a variety of planning subjects, from which we give abstracts of two below. Others will be given in subsequent issues.

## NEW TOWNS CORPORATIONS

### THEIR WORK AND ORGANISATION

"TEN years from now twenty New Towns will be nearing completion in England, Scotland and Wales. We shall have little excuse if they are not of high quality and really attractive places in which to live, work and play." With these words MR. GORDON STEPHENSON, Senior Research Officer of the Ministry of Town and Country Planning, introduced his paper on "New Towns" before the Summer School on September 3.

After briefly describing the scope and powers of the New Towns Act, the speaker went on to describe the job which faces a New Towns Corporation and the kind of organisation it will need in order to fulfil its very considerable programme. We take the following extracts :—

One of the first steps a Corporation may take is to set up an information office on the site. From the earliest stage it is essential the public should be kept fully informed of the decisions and actions which are being taken; public opinion will also have an increasing effect on the character of the development.

The Corporation must quickly establish the principles and main lines of a Master Plan. This is no easy job—heaven only knows what will happen if an abstract geometrician, masquerading as a planner, is let loose on the territory. A thoroughgoing survey is an essential pre-requisite. An exact knowledge of the site and the many activities on it will help shape the plan into a workable instrument ready for the action stage. For example, the majority of the land will be in farms, and they should not lightly be disturbed and unsettled to make a planners' holiday. The farm units should be taken in orderly sequence, many of them remaining undisturbed for several years. Again, there is no point in opening up territory if services to it cannot be supplied until a later stage. But perhaps the most important reason for not rushing out an "ideal" pattern is that there are many people, organisations, authorities, departments and statutory undertakers who must be consulted.

The first step in the drawing of the Master Plan will be the determination of the main areas for the different main uses. The factory area and the central area will almost inevitably be the most difficult to settle. Though it is not possible to lay down universal rules, land of about the following acreages will be required for the main use areas in a town of 60,000 population : (1) Industrial, 600 acres; (2) Main Centre (including shops, offices, parking, administrative buildings, wholesale business, bus station and railway station approach, P.O. facilities, theatres, county college, central assembly hall, cultural buildings and a modest allowance for planted spaces), 100 acres (the Reith Committee estimate of 60 acres is, in my view, too conservative); (3) Residential (including local open space), 2,000 acres, minimum; (4) Neighbourhood business areas, 60-80 acres; (5) Schools and school playing fields, 300 acres; (6) Major public open spaces (including parks, parkways, woodlands, playing fields), 1,000 acres; (7) other open land (including farms, market gardens, golf course or courses, hospital area, etc.), 1,500 acres; (8) Railway land, 100-200 acres.

The principles governing the location and design of the main use areas are bound to vary according to policy, site and technique adopted, but the following notes are put down as a basis for discussion.

#### Industrial Area.

On a normal site it will be preferable to have one major industrial estate and this should be on land which is relatively flat, adjacent to the railway and easily linked to the main regional roads adjacent to the town. The industrial estate should not break up the other main use areas; it should flank the town rather than form a wedge. There must be room for efficient exchange sidings between it and the railway (the exchange sidings and industrial sidings will be designed and built by the Corporation). The main roads in the industrial area should connect directly to the regional roads without passing through the rest of the town. The design of the industrial estate should be on the basis of maximum efficiency. Factories requiring railway access should be grouped; factories covering large areas should be on the flatter land. The layout should be spacious, with trees, planting, and small recreational areas in evidence. In some towns it may be necessary to have more than one major industrial area; even then the foregoing principles should apply. In all cases ease of communication for pedestrians, cyclists, private vehicles and public service vehicles should be established between the industrial and residential areas. Careful calculations should be made to ensure that carriageways, cycle tracks and footwalks are adequate for peak-hour traffic.

#### The Main Centre.

The town Centre should literally be in the centre of gravity. The desirable location is between the main industrial area and the residential areas with the main roads, linking homes with work, flanking it. The railway station and bus station should be adjacent to the centre; together they will form the hub of the traffic system. Five principal groups of buildings will form the main centre. Shops and offices will form the largest group and, together with the cultural, recreational and administrative buildings, will require a fairly regular layout, bounded, but not crossed, by local through routes. Certain buildings such as those housing wholesale business, the automatic telephone exchange and the postal parcels office will not normally be visited by the public. They require a central position but need not be within the "inner ring" road. The central educational building, probably a county college which may require, with playing fields, a twenty-acre site, would be better placed just outside the central area proper. I do not agree with the Reith Committee conclusion that there should not be a central park. I think a park of modest dimensions containing restaurants and sports facilities would be well placed adjacent to the central area. It would be intensively used by people working in the central area, shoppers and industrial workers. Because it would be near the hub of the transport system it would be an appropriate place for a sports centre (to be used chiefly outside normal working hours).

#### Residential Areas.

Despite the critics, who propose no alternative, I think the residential parts of the town will inevitably be developed as a series of residential neighbourhoods. Programming alone will demand this. If a proper pattern of schools, open spaces, local shopping centres and local communal buildings is established, and related to the main road and main open space structure, a series of residential neighbourhoods will result. Common to all will be the town centre and the industrial area. In addition there may be certain buildings and facilities (such as secondary schools and swimming baths) which would serve one or more residential neighbourhoods. The planning of residential areas is the subject of at least another paper. I would like to leave the subject to the discussion by concluding that there is room for great experiment in the New Towns; experiment in ways of living, in density, in many arrangements of all kinds of dwellings.

Strategically located in the residential neighbourhoods should be a series of shopping and neighbourhood centres. These may range between fairly large groups of buildings to quite small and very local centres. In the larger centres 50-100 shops may be combined with a small workshop area and, together with a community centre, church, pubs and other buildings, form quite an important meeting ground for people of all groups and ages interested in all kinds of activities.

The Education Act, 1944, with its regulations, can be translated into a magnificent school system. The most surprising aspect of the translation, and many planners will have experienced the feeling of surprise, is the amount of land required for school buildings and their playing fields. It should be possible to make an ideal school pattern, with primary schools within the neighbourhoods and easily within half a mile of every home, even in areas of low density. It is to be hoped that planners will express the links between various types of schools, between homes and schools, and between schools and the open space system.

#### Major Public Open Spaces.

On any site the survey will show quite clearly that some parts should be included in the major open space system. They may be existing woodlands or parks surrounding country houses; they may be small valleys including streams; they may be flat pastures eminently suitable for playing fields. They may be patches of first-class land which could easily be developed for allotment gardens. All these should be woven into a balanced open space system. It should be possible to arrange the pattern so that people can walk through and about the town in land which is free of buildings and roads. The major open spaces should be complementary to and link up with the local neighbourhood open spaces.

It will be necessary to take some land for purposes which cannot be defined in the early stages. For example, we know that hospitals and health buildings will be planned on a regional basis; until this planning is done the programme for hospital building cannot be formulated. At least one golf course, and possibly two, will be needed before the town is completed. There are other reasons why land may be taken outside the predicted built-up area. The New Town will be in one local authority area and it is well that the area should be clearly defined. Marked physical boundaries are an advantage; these may be railway lines, valley

bottoms or major regional roads. Finally, in order to get the best physical layout it may be necessary for the boundary to cut through existing farm units (though this should be avoided so far as possible). A rearrangement of severed units is facilitated by acquisition.

It is certain that additional land will be needed for railway purposes in a New Town. There will be a new passenger station and a new goods station. The latter will be fairly extensive.

## TRADING ESTATES & PLANNING

### ADVANTAGES TO INDUSTRY

THE many advantages which the trading estate offers in the industrial development of the country were detailed by LIEUT.-COL. M. D. METHVEN, Director of N.E. Trading Estates, Ltd., when he addressed the Summer School at Durham on Saturday, September 7.

The speaker, delivering his paper, "The Place of Trading Estates in Planning," began by setting out the advantages accruing from the intelligent geographic siting of a trading estate and then suggested to planners the need for making adequate provision for expansion.

The following extracts are taken from the speaker's remarks :—

Even if planners consider that the size of towns and conurbations should and can be controlled and limited, no one has yet suggested that a limit should be placed upon industrial growth and, in fact, industry has proved to resemble a living organism in this respect, never being really static, but continually growing or contracting. A well-planned trading estate can, and should, make provision for the needs of expanding industry in three ways :

(1) By maintaining a low density of coverage and a set portion of expansion space specifically allocated to all new buildings.

(2) By offering the facilities to a manufacturing firm to transfer to new premises a *short* distance away under the easiest possible conditions of change.

(3) By preserving inviolate open space and amenity for the enjoyment of employees and employers alike on a communal basis.

A modern trading estate of good size, with a wide diversity of manufacturing activity, is in a position by using the laws of average to forecast the demands industrialists are likely to make for public utility services and for the needs of travel and transport of goods. Where such an estate is capitalised from the public purse it is possible to make long-term provision for all essential services.

By laying down a backbone of gas and water mains and electrical cables of adequate capacity, it is possible to anticipate the needs of industrialists, to plan the distribution from the backbone mainage so as to avoid interference with roads or buildings. The industrialists are relieved of restriction or embarrassment due to shortage of any of the essential services, whilst the public utility companies can watch the growth and development and make their plans in good and sufficient time to ensure that shortages do not occur.

In a similar way the law of averages can be made to apply to the use of rail transport, and a backbone of railway communication can be laid down with the advice of the railway company to ensure that the growing volume of rail traffic does not embarrass the railway company at its point of connection and that no serious difficulty is experienced in providing to manufacturing concerns direct rail communication and a satisfactory service, without the industrialist having to appoint an expert on traffic handling, this service being rendered centrally.

Road transport is taken care of by ensuring that the estate is located with easy access on to main traffic arteries in all directions and a generous internal road system, complete with access roads to factory doors, is provided, thus keeping goods traffic from parking on Class A roads of the estate and also avoiding heavy and slow-moving traffic parking in the streets of the town or even passing through the congested parts of the city.

Although some problems remain, estate development allows the difficulties to be appreciated and assessed in simple form, and the grouping of industries enables transport experts to devise solutions which can be made effective through the help obtainable from tenants and workers' associations existing on such estates. Any technical problem is of minor importance compared to the advantage in principle inherent in trading estate development.

#### Economical Provision of Amenities and Facilities.

For several years there has been a growing tendency to associate with all big industrial undertakings many amenities and facilities for the benefit of the work of the undertaking, its staff and its employees—such things as facilities for communal feeding, educational clubs, staff clubs, weighbridges, transport specialists, and many other items, part industrial, part social.

A trading estate can provide such amenities on a communal basis and a specialist administrative body, through associations of employers and employed, can determine when any particular amenity or facility becomes necessary, and can either arrange their provision on a communal basis, can stimulate a separate individual enterprise to provide them for the geographic grouping of industry, or can itself provide them as a self remunerative service.

#### Provision of Healthy Conditions.

Where the administrators of a trading estate have as an objective the success of industry from all points of view, and where the administration is in the hands of a non-profit earning organisation, there should be a strong enough control to see that all industrial activity is carried on under good, clean, healthy conditions.

Originally in the design and layout it should be possible to ensure generous road widths and inviolate open spaces. When factory buildings are erected by the specialist administrators it is within their control to see that requirements of light and air, avoidance of smoke and smell are all safeguarded.

Where one individual industrialist will be, by experience, very limited in his information as to best factory design, layout and construction, the trading estate organisation, dealing with very many different industrialists, architects, builders and materials, has a very much wider experience, and should be constantly increasing its information as to the very best practice in factory layout, factory design and estate layout to ensure the finest conditions for the wide variety of industries for which the organisation is called upon to cater.

#### Design of Factory Premises.

Bearing in mind that, in a very high percentage of industries, rent is but a very small percentage of turnover (whether it be by way of true rent or by way of interest on capital and depreciation of the asset value), there seems little justification for economising too severely on the design and appearance of factory premises. The difference in rent due to the extra cost of making premises æsthetically satisfying can only be a minute percentage of the cost of the article outturned by the industry.

Granted that the foregoing argument is sound, then the advantage available through trading estate development in the hands of a specialist administration is obvious in the æsthetic field.

Attractively designed buildings which are æsthetically satisfying as well as functional; correctly designed in relation to such items as parapet heights; well sited with a view to open space and broad general appearance; constructed of harmonising material and of generally harmonious architecture—all these factors must tend to produce an estate which has a selling value for even the most hard-bitten industrialist. Therefore it is logical to expect that as more trading estates come into being there will be ever-increasing competition to provide industrial groups which are æsthetically pleasing and correct, and to find the standard of industrial building rising as each new estate comes into being. The early control exercised by Professor Holford on Team Valley has achieved and secured much in this respect, even though the demands of war construction and shortage of building materials have tended to restrict the fulfilment of his conception.

#### Industrial Linkage and Other Advantages.

Does not the trading estate development offer opportunity for a piece of industrial planning whereby on one estate all the processes, from the animal to the finished boot or glove, to the cooking fat or glandular pharmaceutical product can take place in close and co-operative conjunction? Many examples of possible industrial linkages spring to the mind as suitable for trading estate grouping, and I am aware that in suggesting this, I am assuming close collaboration between authorities concerned with production planning and with building development.

The grouping of industries on to one large site offers certain other advantages. To the education authorities it tends to group together young entrants into industry and thus simplify not only continued and adult education, but also continuity of contact with students leaving school for the factory and the passing on to industrial welfare officers the knowledge of students which teachers have collected during school years.

The trading estate then has both broad and detailed interest for the planner. A large estate can greatly influence an associated town in its direction of growth, its size, its importance and its traffic. At the same time, the estate itself brings many domestic considerations of design, layout and social functions.

Separately and distinctly, the trading estate movement may well be used as the instrument for an entirely new technique in central planning whereby the whole economy of trade, if not a country, may be influenced by sound industrial linkage.

Similarly, the trading estate may be the instrument for much detailed experiment into such questions as road design, density of coverage and communal feeding arrangements.

The movement may well be in its infancy and form a new field for the study of town and country planners, but clearly wherever a trading estate is developed on full scale it must have a basic and far-reaching effect on the planning of its area.

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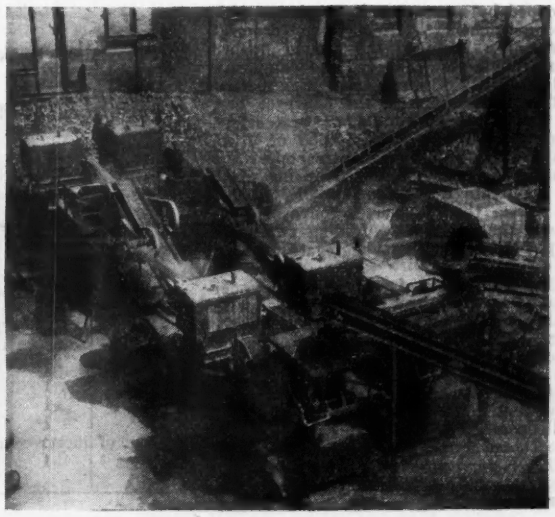


Two general views of the plant. On the left are workmen feeding the ground hopper while at the top of the conveyor a "watcher" removes metal and other foreign material before the rubble enters the crushers, which are shown in the foreground of the picture on the right.

# BUILDING MATERIALS FROM WAR DEBRIS

## MECHANICAL CRUSHING PLANT

THE new post-war London is being rebuilt not only on but from the ruins of the old. When the bombs of the *Luftwaffe* rained on the capital during the blitz years, few Londoners imagined that the débris and rubble of former houses, churches, flats and offices, even the shelters in which they crouched, would play a major part in the construction of new homes in the rebuilding programme at the end of the war. Yet such is undoubtedly the case today.

Some time ago the London County Council's principal quantity surveyor conceived the idea of re-using bricks and concrete from bomb-damaged buildings in the Council's post-war housing programme, and to this end carried out, with the assistance of Mr. C. S. Willment, of the firm of engineering contractors, a number of experiments in crushing débris and reconstituting it in the form of bricks, partition blocks, graded aggregates and sand.

Some difficulty was encountered at the outset, for the débris from bombed houses, etc., was found to contain a number of impurities in the form of free plaster, fragments of floor boarding and furniture, broken crockery and so on which were present in no small quantities. When the Government decided to demolish street shelters, however, this difficulty was largely overcome, for the resulting rubble was found to be virtually free from the impurities mentioned.

With the co-operation of the Home Office, arrangements were made for a proportion of the shelter materials to be transported from demolition sites to the Council's contractor, Messrs. Willment Bros., Ltd., at Bridge Mills Wharf, by the southern end of Waterloo Bridge, where large-scale mechanical crushing plant had been set up.

The requirements for the Council's first-year housing programme were ascertained and the following figures give some indication of the estimated quantities needed :—500,000 cubic yards of ¾ in. graded brick and concrete aggregate; 308,000 cubic yards of brick "sand"; 100,000 yards of 2 in. partition blocks 18 in. by 9 in.

### Large-Scale Production.

It is estimated that these quantities need to be doubled to meet the L.C.C.'s second-year building programme. It was necessary, therefore, to organise crushing plant on a scale that would produce some 4,000 yards of processed material per week. The plant at Bridge Mills Wharf, the first to be set up, is now turning out approximately 2,000 yards of crushed material each week.

The accompanying photographs give some idea of the layout of the plant. Loads from demolition sites are carried into the yard and dumped alongside a hopper at ground level. Larger pieces of débris are broken either by gravitational crushing with the aid of a three-ton weight

Another general view taken from Waterloo Bridge. The long master conveyor can be seen carrying crushed aggregate and sand to the main hoppers (top right) from which the lorries are loaded.

dropped by a crane, or by workmen with sledge-hammers. After being dropped through a grille to the ground hopper the rubble is conveyed to duplicate "lightning" crushers fitted with electrically agitated screens, the conveyor belt en route being scrutinised by "watchers," who remove any metal, wood or other "impurities." From another hopper the material is carried to a pulverising plant to accelerate the production of "sand," and from there a master conveyor completes the process by feeding two main hoppers, one for ¾ in. aggregate and the other for "sand."

A constant flow of vehicles passes under the main hoppers and they are loaded with either sand or aggregate; a six-yard lorry can be filled and on its way to a housing site in less than two minutes. Over 80 lorries a day are filled in this way.

The entire plant was set up by Messrs. Willment in January this year and was in full operation by February 1, the date for the commencement of the contract.

The facing bricks made from the crushed aggregate have a pleasing colour and texture, being similar in character to a sand-lime autoclave brick. In the course of experimental work the Chief Engineer of the London County Council carried out a series of tests on the materials produced before the main project was put into operation.

As is evident from the tables on this page, the tests proved so satisfactory that every effort was made to expedite their production. In the case of processed brick aggregate it can be seen that the results for the 4 :1 mix leave no doubt as to its suitability as aggregate for suspended concrete floors in the block dwellings being built by the Council. The results of the test for the processed brick sand show that the 6 :1 :1 mix is quite satisfactory for mortar in brickwork.

Tests on the materials produced by the L.C.C. have also been carried out by the Building Research Station at Garston, and the results have confirmed the findings of the Chief Engineer's Department of the Council. More recently the Building Research Station staff have tested similar materials from various places throughout the country, the results obtained being the subject of a separate report. On page 277 of this issue the Building Research Station's findings are given.

The manufacture of partition blocks is carried out at Hounslow and has been under way for some five months past, approximately 14,000 sq. yds. having, so far, been made. The blocks are 2 in. thick and are capable of fine jointing. By reason of their composition, their sound absorption and acoustic properties are reported to be good, and they need only skim coating in lieu of the render and set necessary on breeze partition blocks. The shortage of breeze and its use as a material for clamp-burned bricks, etc., was a factor borne in mind when partition block experiments were carried out.

### Supplementary Production.

It is emphasised that the production of sand and concrete aggregates by the L.C.C. has been to supplement the natural sand and ballast provided from pits in and around London. Owing to the "mass" launching of housing contracts throughout the country a big strain has fallen upon sand and ballast suppliers, especially in view of the difficult transport position. This strain has, to some extent, been met by the L.C.C.'s venture, but it still remains possible within the Council's own programme to use for foundations, over-site concrete, plastering and reinforced concrete schemes the natural materials which become available.

The economic aspect of the Council's project was fully considered in conjunction with Home Office officials and it was found that considerable saving of public money would be effected by depositing the material at processing sites in lieu of static storage sites and that at least £2,000,000 could be saved on transport if the material were consumed within the County of London area instead of being transported long distances to fill up gravel pits and out-county depressions. In addition, it was realised that there would be a greater economy in the use of vehicles, for any one vehicle could do many short runs within the London area as against only two or three per day when depositing at sites well outside the county area.

It is considered that the cost of the crushed material compares favourably when delivered to site with natural materials, the cost of crushing being set against the length of haulage of natural sand and ballast.

At the present time the material produced is being consumed on the Council's housing sites as fast as it arrives, and the Council contemplate setting up similar crushing plants in other parts of London, notably in the Isle of Dogs, to serve the huge East London development schemes, and the western districts as occasioned by demand. Metropolitan boroughs have been informed that should they require the materials for their housing programmes the L.C.C. will be prepared to assist them, it being appreciated that they themselves may not be in a position to acquire the huge plant necessary for their manufacture.

Some indication of the contribution that the processed sand and aggregate have made to London's housing programme may be gleaned from the fact that recent surveys show that a large number of the Council's flat-dwellings are now completed as high as the fifth storey. The reports would not have shown this had the processed material not been forthcoming.

PROCESSED BRICK AGGREGATE.

Size: ¾ in. to 5/32 in.

| Proportions by Volume. Brick Aggregate. ¾ in.–5/32 in. | Brick Sand. 5/32 in. down. | P.C. | Compressive Strength. 7 days. lb./sq. in. In water. | In air. |
|---|---|---|---|---|
| 4 | — | 1 | 1,217 | 1,377 |
| 6 | 2 | 1 | 583 | 679 |

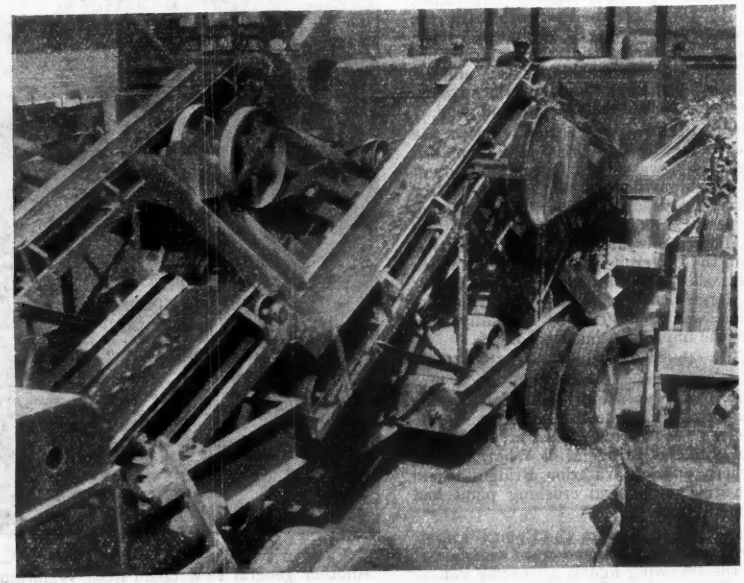
PROCESSED BRICK SAND.

Size: 5/32 in. down.

| Proportions by Volume. Brick sand. | P.C. | Lime. | Tensile Strength. lb./sq. in. 3 days. | 7 days. | Compressive Strength. lb./sq. in. 7 days. | Transverse Strength 2-in. Span Coefficient of Flexure. lb./sq. in. 3 days. | 7 days. |
|---|---|---|---|---|---|---|---|
| 4 | 1 | — | 57 | 95 | 709 | 248 | 257 |
| 6 | 1 | 1 | 68 | 152 | 934 | 261 | 384 |
| 7 | 1 | 1 | * | 53 | 347 | 91 | 213 |
| 7 | 1 | 1½ | * | 55 | 350 | 97 | 202 |
| Average of 7 | most recent results of ready-mixed lime mortar from jobs (pit). 1 | 1 | 60 | 88 | 587 | 90 | 152 |

* Specimens broke on application of load.

In each case the result given above is the average of three.



Crushed rubble being conveyed to the Pulverising Plant.

MECHANICAL CRUSHING PLANT: The Administration Office on the crushing site. The bricks used in its construction were made from "processed" material. (See page 275.)

# BRICK RUBBLE AS AGGREGATE FOR CONCRETE

## BUILDING RESEARCH STATION REPORT

[THE following report on "The Utilisation of Brick Rubble from Demolished Shelters as Aggregate for Concrete," prepared by Mr. A. J. Newman, B.Sc., of the Department of Scientific and Industrial Research, describes work carried out as part of the programme of the Building Research Board and is published by permission of the Director of Building Research.—ED.]

THERE is at the present time much material available from demolished shelters, blast-walls, defence posts and the like, constructed during the war. Methods of demolishing surface shelters and other masonry structures, together with some suggested uses for the products of demolition, were described in a paper entitled "Demolition of Shelters and Utilisation of Hard-core," by Sir Alexander Rouse, C.I.E., F.C.H., M.Inst.C.E., published in "The Journal of the Institution of Municipal and County Engineers," Volume 72, No. 2—September 4, 1945. [A report of this paper appeared in *The Builder* for July 27, 1945.] A survey of the materials available from the demolition of such structures, together with information regarding their possible uses, was also given in a Ministry of Health Circular No. 175/45, which was issued to local authorities. One possible use of brick rubble is as aggregate for concrete, but doubts have been expressed on the advisability of using such material. These doubts seem to have arisen in large measure from the fact that it is generally inadvisable to use rubble from demolished *buildings* (other than shelters, etc.) in new construction. The two cases have, however, to be clearly differentiated. The main risk in the use of such material arises from the presence of sulphates leading to inter-action with Portland cement and consequent expansion. Rubble from demolished shelters, etc., and rubble from demolished buildings are very different in this respect, the latter being liable to contain an appreciable proportion of sulphates derived from the gypsum plaster applied to the walls and ceilings of the buildings. Shelters, blast-walls, defence posts, etc., were not plastered except perhaps in a few minor instances, so that the liability of the rubble from the demolition of such structures being contaminated with gypsum plaster does not arise. In general, therefore, the question of the use of brick rubble from demolished shelters and the like reduces to one of the use of crushed brick aggregate for concrete or mortar. Bricks themselves, however, contain varying percentages of sulphates, which, though small in relation to that contained in rubble from demolished buildings, cannot be disregarded. The possibility of sulphate failure of concrete made with crushed brick aggregate must therefore be envisaged where the concrete is made with bricks of relatively high sulphate content and is exposed to the weather or to persistent dampness.

Potential users of crushed shelter rubble will doubtless not be in a position to consider any very extensive sampling of material from demolished shelters and the like, but the necessity for this hardly arises if the concrete is to be used only in dry positions. It is not possible from the experimental data so far available to state any limit other than a rather rigid one of sulphate content below which no question arises as to the suitability of the material for use in all positions, and it is therefore recommended that, until such data are available, crushed shelter rubble material should be restricted to use for concrete in dry positions, in which case no special restrictions as to sulphate content are necessary. Examples of what is meant by dry positions in this sense are—suspended floors (particularly those of the filler joist types), hearths for fires, concrete (*in-situ* or precast units) for internal walling, and concrete (*in-situ* or precast units) for external walling which is to be protected by renderings.

The following are notes dealing in more detail with the grades of crushed rubble and their uses, and with the properties of brick rubble concrete. The notes deal specifically with the re-use of rubble from demolished shelters, etc., and not with rubble from demolished buildings.

### A. Grades of Crushed Rubble and Their Uses.

The materials obtained by crushing and screening brickwork rubble are valuable for building purposes, and should not be regarded simply as makeshift substitutes for materials normally obtained from natural sources. For some purposes, *e.g.*, for fire-resistant concrete, they are to be preferred to the latter, and they have, in fact, been used successfully for a great many years.

Apart from the more obvious uses of the brick rubble for sub-grades for roads and housing sites, etc., and the re-use of any cleaned sound bricks for brickwork construction (see Building Research Station leaflet, "The Strength of Brickwork Built with Salvage Bricks," issued March, 1942), the grades of material that are probably of most general use for concrete production are:

(*a*) *Coarse material*

(i) 1 in. or $\frac{3}{4}$ in. down to $\frac{3}{16}$ in. or $\frac{1}{4}$ in.

(ii) $\frac{1}{2}$ in. or $\frac{3}{8}$ in. down to $\frac{3}{16}$ in. or $\frac{1}{8}$ in.

and

(*b*) *Fine material* passing $\frac{3}{16}$ in. or $\frac{1}{8}$ in.

The coarse material graded from 1 in. or $\frac{3}{4}$ in. down can be used with Portland cement for *in-situ* "No-fines" concrete walling. Owing to the possible presence of sulphate a protective rendering in all wet positions is recommended with brick rubble concrete, and, since in any event "No-fines" concrete requires an external rendering for weather protection purposes, the use of brick rubble for "No-fines" concrete walling appears to be specially suitable. The coarse material when recombined with a suitable proportion of fine material is suitable for precast walling block manufacture, and many examples of the use of brick rubble for the purpose have been examined at this station. Depending upon the mix proportions and the ratio of fine to coarse material, the resulting concrete can be made of either dense or open-textured quality. The denser concretes can be used in the normal way in all dry positions. The open textured quality is suitable for the production of walling block units, and recent data have shown that in many respects brick-rubble concrete of open texture is preferable to the denser rubble concrete. The advantages of the open-texture concrete quality for block manufacture have been confirmed by information from other countries, *e.g.*, Germany, Sweden, and U.S.A. Data from these sources show that the open-textured concrete blocks have better thermal insulation and lower shrinkage, and, in addition, provide an excellent base for the application of plaster and renderings. Brick rubble of the denser type is suitable for encasing steel beams and columns to provide good fire protection.

The fine material can be used for mortar and as the fine aggregate for concrete. Owing to the possible presence of sulphates, and to the higher absorption, with the accompanying risk of a lower frost resistance, brick rubble mortar should be used only in dry positions, and is therefore not recommended for external rendering work.

### B. Properties of Brick Rubble Concrete and Mortar.

Tests have recently been carried out on eight samples of shelter rubble to examine the properties of concrete and mortar made with this material. The test results provide sufficient data to show that the material may be regarded as suitable for concrete.

For the purposes of the tests, bulk samples of shelter rubble were obtained, in collaboration with the Home Office, from demolition sites in various parts of the country.

The choice of each site was such as to be representative of shelter rubble material available in different parts of the country.

Samples were obtained from the following sources: London: (a) Hanwell, (b) Wembley, (c) Twickenham; Scotland: Edinburgh; North England: Newcastle; South Wales: Neath; Midlands: Manchester; West of England: Exeter.

Each sample was stated to be typical of the debris from the demolition work in progress and for the purpose of the tests to be carried out, each material was first crushed in a jaw crusher to pass a ¾-in. sieve and then screened into the following size fractions: (a) Coarse aggregate, ¾ in. to $\frac{3}{16}$ in.; (b) fine aggregate, $\frac{3}{16}$ in. down.

The following tests were carried out on the aggregate prepared from each of the samples submitted: (1) Grading, bulk density and aggregate crushing test. (2) Sulphate content. (3) Compressive strength of concrete. (4) Thermal conductivity of concrete. (5) Compressive and tensile strength of mortar.

The results of the tests, together with information on other properties, are given as follows:—

## Grading, Bulk Density and Aggregate Crushing Test.

(a) *Grading.*—The grading characteristics of the coarse and fine fractions for each rubble sample were determined by sieve analysis. The grading of each of the coarse aggregates conforms to the requirements for ¾ in. to $\frac{3}{16}$ in. given in B.S.882, "Coarse and Fine Aggregates from Natural Sources for Concrete." The grading of each of the fine aggregates may be regarded as satisfactory for concrete and meet the grading requirements for fine aggregate, Class A, as given in B.S.882. From point of view of grading, therefore, the rubble materials may be regarded as producing satisfactorily graded aggregates for concrete.

(b) *Bulk Density.*—The weight per cub. ft. of the aggregate fractions for each rubble sample was determined by loosely filling a cubic foot box with the material The results show that the rubble material from each source produces aggregate fractions much lighter in bulk density than the sand and gravel used for comparative tests.

(c) *Aggregate Crushing Test.*—The aggregate crushing value for each rubble sample was determined by the method described in Appendix G of B.S.882. In this test, samples of each rubble were prepared to ½-in.-⅜-in. grading and placed in a 6-in. diameter metal cylinder fitted with plunger and base-plate. A load of 40 tons was applied to the test samples by means of the plunger, and the amount of material passing a British Standard No. 7 mesh sieve was measured.

The weight of fines (passing No. 7 sieve) formed in the test and expressed as a percentage of the total sample is defined as the "Aggregate Crushing Value" of the material. The results of the tests carried out on the coarse aggregate fraction from each source show that each of the rubble samples produces an aggregate of much softer nature than the gravel aggregates tested for comparative purposes. Two of the samples tested exceeded the value of 45 per cent. specified in B.S.882 for aggregates to be used for concrete for other than wearing surfaces. All the samples failed to meet the 30 per cent. requirement of B.S.882 for concrete wearing surfaces (*i.e.*, roads, pavings, etc.).

## Sulphate Content.

The percentage by weight of sulphate sulphur expressed as sulphur trioxide ($SO_3$) was determined for each aggregate fraction. The results show that the material from the various sources differs widely in sulphate content. The samples from the London area (Hanwell, Wembley and Twickenham) have considerably higher sulphate contents than material from the other sources. This is not unexpected as these three samples were composed mainly of Fletton bricks. The samples from the other sources are markedly lower.

## Compressive Strength of Concrete.

The compressive strength of concretes prepared from the various rubble samples submitted was determined from crushing tests on 4-in. cube specimens. For each sample, mixes in the proportions one part cement to two parts fine aggregate to four parts coarse aggregate were examined. Although the proportions are stated by volume, the actual batching of the mixes was carried out by weight, the equivalent weight proportions being determined from the bulk density values obtained for each aggregate fraction. The weight of cement was assumed to be 90 lb./cu. ft. in all cases. The effect of replacing the fine rubble aggregate by river sand was also examined. The results of the tests for ages up to 28 days and for both water- and air-stored specimens (in each case the water content was adjusted to give equal workability for all mixes as determined by slump tests) show that all the samples produced concrete of satisfactory strength. In the case of the rubble from the London area the concrete had somewhat lower strength, and it was observed that these materials had the highest sulphate content, higher aggregate crushing values, and required higher water contents for equal workability. The strength of the concrete made from the other samples was generally higher than that for gravel and sand concrete of the same workability. The results for all the tests show that in general the air-stored concretes were stronger than water-stored concretes. Replacement of the fine rubble by river sand reduced the water content required for equal workability and increased the strength and density of the concrete.

In the case of the rubble samples from the three sites in the London area, additional tests were made on 1 : 1½ : 3 and 1 : 2½ : 7½ by volume mixes using all brick rubble aggregate and with sand in place of the fine rubble. In general, the results show that the rubble concretes obeyed the usual strength/water-cement ratio law.

## Thermal Conductivity.

Test specimens have been prepared with shelter rubble aggregate concrete, but the thermal conductivity data on these are not yet complete. The values obtained for the concrete made with fine and coarse aggregate from Hanwell shelter rubble suggest that the thermal insulation of brick rubble concretes will be better than that for dense natural aggregate concretes. The results also show that a higher value for thermal conductivity is obtained for the concrete in which river sand is used in place of the fine rubble. A similar conclusion can be drawn from the tests on the other brick concretes. This suggests that in order to get the best results from brick rubble, some preliminary sorting over of the shelter debris is advisable to ensure that the aggregate to be used for concrete contains as much brick as possible and as little natural aggregate concrete and mortar. This confirms the conclusion from German tests—that to obtain the best heat insulation, aggregate containing quartz should not be used.

The result also shows that the "No-fines" concrete with brick aggregate gives the best thermal insulation.

## Compressive and Tensile Strengths of Mortar.

Tests have been carried out using each sample submitted incorporated in mortar of proportions 1 :1 :6, cement, lime and $\frac{3}{16}$ in. down rubble by volume. The results have been compared with those from a similar mix using river sand in place of the rubble. In the case of the rubble samples from the London area, additional tests were made on 1 :0 :3 and 1 :2 :9 by volume mix proportions. In every case the water content was adjusted to give the same degree of workability for all mixes. In general the strengths of the rubble mortars were higher than those for the river sand mortar.

From the point of view of strength, therefore, shelter rubble materials examined were satisfactory for mortar.

## Conclusions.

From the tests carried out and from previous experience with similar materials the following conclusions are made regarding the use of crushed brick rubble for concrete and mortar:—

*Grading, etc.*—The shelter rubble when crushed in a jaw crusher, and screened, produced aggregate of satisfactory grading for concrete and mortar. The density of the aggregate fractions was in general much lower than natural dense aggregates. They are also softer than natural aggregate and would not generally be regarded as very satisfactory for hard-wearing concrete surfaces.

*Strength.*—The compressive strength of concrete prepared from crushed shelter rubble is sufficient for normal building purposes. Strength values at 28 days ranging from 2,800 to over 5,000 lb./sq. in. were obtained on 1 : 2 : 4 mixes made with the samples submitted. In general, the strength of rubble concrete is higher than that of normal dense concrete.

*Density.*—The density of air-dry brick rubble concrete of the proportions 1 : 2 : 4 varies from about 115 to 135 lb./cu. ft. Increases in density can be obtained by replacing the fine rubble aggregate by river sand. It should, however, be noted that the lower density is due to the relatively higher porosity of the aggregate. Owing to this, brick rubble concrete will be less resistant to the penetration of moisture than the heavier and denser types, and should therefore not generally be used in exposed situations without suitable rendering or other protective cover. This is also necessary on account of the risk that the aggregate may contain sulphates in appreciable quantities.

*Thermal Insulation.*—It has long been recognised that brick rubble concrete has better thermal insulating properties than concrete made with natural aggregates, largely on account of its lower density. It follows, therefore, that if it is desired to achieve the higher degree of thermal insulation, crushed shelter rubble should contain as much brick as possible and as little concrete and mortar.

*Fire Resistance.*—Crushed clay brick has been shown by experience and by earlier tests carried out at the Building Research Station to be one of the best aggregates for concrete which may have to resist fire. In using crushed shelter rubble for fire-resistant concrete, some preliminary sorting out seems desirable to select the cleanest bricks and to discard lumps of concrete and mortar. Crushing tests on cylinders of concrete heated to various temperatures and then allowed to cool to room temperature showed that 1 : 2 : 4 (by volume) concrete using crushed Accrington brick aggregate deteriorated

far less than similar concrete using gravel aggregate. Thus, whereas the loss in strength of 1 : 2 : 4 gravel concrete after heating to 400 deg. C. was 34 per cent.; that of brick concrete was only 6 per cent.; while after heating to 600 deg. C. the figures were 77 per cent. and 22 per cent. respectively. At 800 deg. C. the brick aggregate still retained more than 50 per cent. of its original strength.

Tests on structural elements carried out in accordance with B.S.476 also illustrated the better fire resistance of brick concrete. Columns composed of 8-in. by 6-in. by 35-lb. R.S.J.s protected by 2 in. of 1 : 2 : 4 concrete (by volume) had a fire resistance of 4 hr. 6 min. when crushed brick aggregate was used, and 3 hr. 39 min. when flint gravel aggregate was used. Restrained reinforced concrete floor slabs 3½ in. thick, reinforced in both directions with ⅝ in. diameter rods at 4½ in. and 5½ in. centres had an endurance of 2 hr. when brick aggregate was used and only 31 min. when flint gravel aggregate was used.

Much evidence of the good behaviour of concrete made with crushed brick aggregate has been obtained from studies of buildings gutted by fire as a result of air attack. Brick concrete was commonly used in many older buildings, particularly in London, in filler joist floors, and in the fires these floors suffered little damage apart from the inevitable weakening of the surface layer due to the high temperatures attained. Little or no spalling occurred in spite of the fact that the quality of the concrete was often lower than would be used to-day.

*Mortar Strength.*—Mixes made with rubble aggregate produced mortar generally of higher strength than sand mortar, and from this point of view may be considered satisfactory. Brick rubble mortar should, however, not be used for external rendering until more information is available.

In general, therefore, the tests carried out to date on the eight samples of shelter rubble show that the material can be crushed and graded to produce coarse aggregate and fine aggregate which will be entirely suitable for concrete for many building purposes. Concrete made with the aggregate can be safely used in all dry positions, or in many cases in all positions, provided adequate weather protection is afforded. The fine aggregate may also be used for mortar for use in dry positions.

[We regret that we are not able to find space for the various tables which accompany the report.—ED.]

# CONTROL OF CIVIL BUILDING

## CURTAILMENT OF ISSUE OF BUILDING LICENCES

IN Circular 171/46, issued on September 6 to local authorities, attention is drawn by the Minister of Health to paragraphs 11 to 14 of Circular 50/46, dated March 6, 1946, and to re-emphasise the need for considering, in the light of the available supply of building labour, all applications for licences which may be made in respect of work not producing additional housing accommodation.

The Minister is aware that there is a huge pent-up demand for repair and improvements to existing dwellings and other premises. But this demand in the immediate future can be met only at the expense of seriously impeding the construction of new permanent houses; and the Minister is quite clear that the construction of new houses must come first and that work on the maintenance and repair of existing premises, badly needed though it often may be, must continue to be deferred. At the present time there is an overall shortage of craftsmen, particularly bricklayers, and although the situation should improve as craftsmen become available from Government Training Centres, it is likely to remain difficult for some time. For the present, therefore, the main source from which additional craftsmen needed for the completion of new permanent houses can be drawn is the building labour force engaged throughout the country on building work of a non-priority character.

As conditions both as to labour and materials vary in different parts of the country, the most satisfactory method of controlling the amount of building work so as to enable house building to proceed without delay is through local consultation with the various interested bodies. As most local authorities are aware, a system of conferences of neighbouring authorities has already been inaugurated, and it is considered that these zonal conferences, as they are called, should be the normal machinery by which building work in particular areas should be regulated. The principal aim of these zonal conferences, which operate under the auspices of the Regional Building Committee, is to enable the representatives of the local authorities, together with the Regional Licensing Officer and other officials of the Ministry of Works, representatives of the Ministry of Labour and National Service and the Principal Housing Officer, jointly to consider a balance-sheet of the supply and demand for local building labour. From these balance-sheets local authorities will be able to judge the extent to which the issue of licences generally needs to be controlled in the interests of the construction of new permanent houses.

### Setting-up of Zonal Conferences.

It is intended to press forward with the setting-up of these conferences in all zones throughout the country. At these conferences, which it is hoped will be commenced or resumed in all Regions except London in September, local authorities will be invited to determine a total quota (in terms of monetary value) of licences for repairs and maintenance work on housing over the ensuing three months. This quota can then be sub-divided by agreement between the local authorities and the Regional Licensing Officer. The Regional Licensing Officer, on his part, will indicate the quota to which he will work in regard to the issue of licences for works of repair, adaptation and conversion of premises other than houses. If a procedure on these lines is adopted, local authorities will know that they are working in concert with neighbouring local authorities and with the Regional Licensing Officer in operating a policy designed to ensure that licences are not granted which may interfere with the needs of new permanent housing construction.

### Interim Arrangements for Restriction.

Pending the establishment of the zonal conferences it is necessary to make interim arrangements for dealing with the licensing position which has arisen as a result of the present unsatisfactory supply of labour on house building. Accordingly, all local authorities which are experiencing difficulties in building up a satisfactorily balanced labour force for their housing schemes are requested at once to restrict, subject to what is said in the penultimate paragraph, the issue of licences for repair and maintenance work to the categories of urgent repair work set out in Circular 138/46, namely :—

A. The repair of a sanitary breakdown in a building to safeguard the health of occupants.
B. The repair of a building to avoid the imminent collapse of a defective part of the structure. This may include painting for protective purposes where there would otherwise be a danger of disintegration and minimum repairs to maintain weather-tightness.
C. The essential repair of gas, electrical and water services, drains and sewers, where the whole or part of the installation is either out of use or in a dangerous condition.
D. The replacement of defective stoves, fires, boilers, water heaters, and other essential equipment in order to make the premises fit for occupation.
E. Urgent works required by a Statutory Notice.

Local authorities are also requested to examine closely applications for repair work to occupied war damaged premises. There has been an inevitable tendency for improvements to dwellings to be undertaken at the same time as the repairs to the dwellings. If, however, a reasonable standard of comfort has already been secured, further repair work should not be allowed, uneconomical and irritating though the two-stage procedure may be. It is recognised that any restriction on the issue of such licences will involve a measure of hardship on some occupiers of war damaged houses who may have already waited a considerable time for needed repairs; but the major hardship is being endured by those with no houses at all of their own, and labour must be concentrated on the new house building.

In applying the foregoing suggestions for the restriction of the issue of licences, care must be taken to ensure that unemployment in the building industry in the area does not result or that those small

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firms which have only been engaged in jobbing work and which are unable to undertake the erection of houses are not put out of business. Local authorities should accordingly consult freely with managers of local employment exchanges as to the employment position in their area and should be prepared immediately to issue licences to such an extent as would absorb unemployed workers or prevent unemployment arising either generally or in particular building trades.

Concurrently with the issue of this Circular, Regional Licensing Officers of the Ministry of Works are being advised to deal with applications for licences for non-priority work on a similar austerity basis.

## BUILDING MATERIALS

### MR. BEVAN'S APPEAL TO WORKERS AND PROPERTY OWNERS

DEALING with the difficulties of housing in a speech at Bristol on Saturday, Mr. Aneurin Bevan, Minister of Health, made an appeal to the British people for self-discipline and self-restraint. "If there are workers engaged on the production of building materials and there is a dispute over wages or conditions or hours," he said, "the workers should not walk out, but they have walked out in some places and not very far from here. Many sites in this area, where temporary houses could be put up, are not occupied by temporary houses because some workers in some places have put their own claims above the claims of their fellow people.

"The trade union movement has never been stronger, the workers have never been more powerful. Is it not unfair to carry a dispute to the point of a stoppage, which may result in addition to keeping people out of their houses? Use your leaders. Use the machinery. If you cannot use them, kick them out, but use them. We are a democratic country. If you cannot make your representatives do what you want them to do, get rid of them. But do not revenge yourself on the helpless. What you must not do is to carry grievances to the point where you actually sabotage the economic recovery of the country.

"The local authority machine is ahead of the building machine," Mr. Bevan continued. "We have in this country 150,000 houses in course of construction. We shall go on. But we cannot do this job without the active co-operation of the people. A great deal of my part of the job has already been done. I am now waiting for the houses to be completed. There are large numbers of houses nearing the stage of completion, and I would like to ask every building worker and employer to make special efforts in the course of the next four months to bring into occupation those houses nearing completion.

"There have been examples of a shortage in building material. I am told there are many houses which could not be occupied because they are short of certain fitments. Take electrical fitments. They are holding up some of our houses. When I go into production figures I find we have produced enough for 4,500,000 houses, but they have not gone into the houses because the distributive machinery has not been honouring the promises to send all those goods to the new houses and they have been wasted in the process.

"As the houses are nearing completion they will require plasterers, plumbers, carpenters, and painters. How am I going to finish those houses now nearing those stages of completion if hundreds of thousands of wanton, frivolous-minded people use up all that labour in black-market repairs? It is not fair. Although there is a big cry about making materials, the materials are made, but they do not find themselves where they should be, because a large number of selfish people are standing in the way."

## MISUSE OF TITLE "ARCHITECT"

### BIRMINGHAM ESTATE AGENTS FINED

Jack Cotton and S. Messer, estate agents, of Cavendish-house, Waterloo-street, Birmingham 2, were at the Marylebone Magistrates' Court, on September 5, each fined £10 with £5 costs, on a summons by the solicitors to the Architects' Registration Council of the United Kingdom, for not being registered under the Architects' Registration Acts and carrying on business on February 15, 1946, under a name containing the word "architect"; that is to say that by a letter under the name Jack Cotton and Partners of that date and addressed to H. H. Box, Esq., they stated they had been appointed architects.

Mr. Ahearn, counsel prosecuting, said the defendants were partners in the firm of Jack Cotton and Partners, auctioneers and estate agents, with a main office in Birmingham, and a branch office in London under the supervision of a man who was not an architect. On February 15, the London office sent out a letter which was the subject of the information: "We have been appointed architects."

A person, continued counsel, was not permitted to carry on business under any name, style, or title appertaining to an architect unless he was registered under the Act. There were various exceptions laid down under the Act which were not applicable to this case. The maximum penalty was £50.

Mr. Lloyd Jones, counsel defending, said there was no question in this case that the letter was written. The explanation was that there were two firms—Jack Cotton and Partners and Jack Cotton, Ballard and Co.—carrying on business in Birmingham. Jack Cotton, Ballard and Co. were a firm of architects and surveyors, and there was one partner who was a registered architect and there were two registered architects employed by the company. The letter in question was intended to be sent by Jack Cotton, Ballard and Co.

"This seems to be true," he went on, "because of the possible construction of the letter which might not have been from the point of view of architects a prudent letter to write. It is a letter purporting to come from architects and it was intended to come from the firm which had registered architects employed by it and one registered architect as a partner. The two firms have certain common partners, Mr. Jack Cotton is common to both; they are working very much one with the other, and Jack Cotton, Ballard and Co. have a minor share in the Jack Cotton of London. I ask you to accept the simple explanation that this was a case where a letter was written under the wrong letter heading and that was the sole reason for this offence having been committed."

Mr. Ahearn replied that, if the facts were as stated, it would be no defence: the firm, Jack Cotton, Ballard and Co., would have to be under the direction of a registered architect who was in fact in a similar capacity for another firm in London, and the London office would also have to be under the control of a registered architect. There was no registered architect in the London office at all, so that even if the facts as explained by counsel defending were true, and he was not going to suggest that there might not have been a mistake, there still would have been the same offence committed.

"I am instructed to say that the Architects' Registration Council do not feel that this case should give authority for a London branch to send out letters of this sort. I am also instructed to say that, even had this letter been sent out by a firm under the control of a registered architect, severe disciplinary action would be taken."

The magistrate asked if Jack Cotton, Ballard and Co., had been appointed architects to a building society.

Mr. Ahearn replied, "Yes, there is no question of that."

The magistrate asked what was the charge against the defendants, and Mr. Ahearn replied that the charge was that on February 15 defendants carried on a business under the name, style and title of architects as being a business, registered under the Architects' Registration Act.

The magistrate asked if to write the letter was "carrying on the business."

Mr. Ahearn replied that it was admitted by the defence to be "carrying on the business" for the purposes of the Act.

The magistrate said he had to look out that he did not unwittingly visit persons guilty of a technical error with heavy penalties.

Mr. Ahearn: I think you can take it here that a technical error from the point of fact does not affect the case. It has the same effect if written from the other firm.

Mr. Lloyd Jones said he could not accept that. In his view, there would have been no offence committed by Jack Cotton, Ballard and Co., and he would have been prepared to contest it, and, in any event, it was not germane to the summons.

"It might be a point of argument," he said, "but the defendants put it forward because they genuinely believe they could have done so. My friend might have been able to satisfy you, or another magistrate, that we were wrong."

Mr. Ahearn: The fact is, that in the London office they should have had a registered architect in control. I am sure you appreciate particularly at this time that architects should be properly appointed and qualified architects. The Registration Council has a duty in bringing this case to ensure that only properly qualified persons shall act as architects . . . and that is what they have done in this case."

The magistrate said he would make no comment. The fine would be £10, and £5 costs, against each of the defendants.

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# THERMAL INSULATION OF DWELLINGS

## PROPOSED NEW METHODS OF CONSTRUCTION

THE Ministry of Health has now given further consideration to the report which the Fuel and Power Advisory Council, under the chairmanship of Sir Ernest Simon, recently made on Domestic Fuel Policy (Command 6762).

This report deals principally with modern methods of space and water heating, but it points out that it is hardly satisfactory to instal the latest fuel-saving devices without ensuring that the heat provided by these is not unnecessarily dissipated through walls and roofs. The present high costs of coal demand not only efficient heating appliances, but a high degree of thermal insulation in the construction of dwellings. Traditional materials and methods do not provide the necessary insulation and new ways must be found of avoiding the considerable heat losses which occur in a traditional brick house.

The most obvious method of effecting an improvement in the thermal insulation of external walls [states M.O.H. Circular 170/46] is to substitute an inner leaf of clinker or foamed slag blocks for the inner leaf of brick in an 11-in. cavity wall. On the ground floor the floorboards can be laid on dovetailed battens (suitably rot-proofed) set direct on oversite concrete or, if timber is not available, pitchmastic or other solid flooring may be substituted.

On the top floor, slag or glass wool can be laid over the ceiling. It may also be desirable to place an upper limit to the total window area of the house. The total annual fuel-savings effected by these methods may justify substantial additional costs of construction.

Details of the proposed methods of construction and costs are given in the Appendix. Councils are invited to study these suggestions and to inform the Minister how far they would be prepared to adopt such methods in their own housing programme.

There are plentiful supplies of slag wool, and adequate supplies of foamed slag can also be made available. If, however, when the comments of the housing authorities have been received, it appears that the demand for these materials will increase substantially, the Minister will be prepared to consider how still further to augment supplies.

### APPENDIX.

*Standards of Insulation.*—The following table gives the standards of insulation in a traditional brick house and an average of the standards recently recommended by Government Committees :—

U = Losses in B.Th.U./sq. ft./hr./°F.

| Surface. | Traditional. U | Recommended. U |
|---|---|---|
| External walls ... | 0.34 | 0.20 |
| Floor ... ... | 0.35 | 0.20 |
| Roof ... ... | 0.56 | 0.20 |

The costs of achieving or approximately achieving the recommended standards are compared below with the cost of traditional construction.

*External Walls.*—The internal leaf of the ordinary brick cavity wall can be replaced by either foamed slag or clinker concrete blocks 4 in. thick without increasing the cost. The standard of insulation achieved is U = 0.20. This would lead to a reduction in the demand for bricks of 5,000 bricks per house.

*Floor.*—In place of boarding and joists on sleeper walls a solid floor of floorboards on dovetailed battens (suitably rot-proofed) set on a waterproof membrane on the oversite concrete would raise the standard of insulation to U = 0.15. Pitchmastic laid directly on concrete would be a suitable alternative giving a U value of about 0.20.

The difference in cost between the two forms of construction depends on the height of the floor above ground level and the slope of the site. On flat sites where the floor level is not much above the ground level the recommended construction would only increase the cost by £2. For other sites it might be as much as £5 and on some sites it would be uneconomic. It should be noted that the recommended method would save both timber and bricks.

*Roof.*—The easiest way to improve the roof insulation of a house with a pitched roof is to lay slag wool or glass wool over the ceiling on the top floor. A thickness of 1 in. would be sufficient to achieve the desired insulation and the estimated additional cost per house would be about £8 for slag wool or £5 for glass wool.

*Windows.*—It should be noted that the heat losses through windows are nearly as high as the losses through the walls in houses with the recommended standards of insulation, and represent nearly 20 per cent. of the total heat requirements. The calculations are based on a house with a window area of 18 per cent. With larger areas the losses may be very much higher. It may be necessary if the benefits of improved insulation are to be obtained to place some upper limit on the window area in relation to the size of the house. It is true that site and aspect will influence the heat losses and double glazing would reduce them.

*Saving in Fuel.*—To offset the slight increase in capital cost which may be caused by the improved insulation there will be a saving in expenditure on fuel.

The heat requirements per annum for a house with traditional construction and for a house with the standards of insulation obtained by the methods recommended above, assuming that the Egerton standards of heating and ventilation are maintained in both cases, are as follows :—

| Surface. | Requirements in Millions B.Th.U. per annum. Traditional Construction. | Recommended Construction. | Savings. | % |
|---|---|---|---|---|
| External walls ... | 6.88 | 4.00 | 2.88 | 42 |
| Windows ... ... | 4.05 | 4.05 | — | — |
| Ground floor ... | 6.85 | 2.78 | 4.07 | 60 |
| Ceiling and roof ... | 3.22 | 1.16 | 2.06 | 64 |
| External doors ... | 0.66 | 0.66 | — | — |
| Ventilation ... ... | 6.11 | 6.11 | — | — |
| Total requirements (allowing for heat gains, and losses through party walls) ... ... | 29.2 | 20.4 | 9.0 | 30 |

The resultant saving in fuel will depend, of course, on the efficiency of the appliance or appliances installed. Assuming that an appliance with a working efficiency of 30 were installed the saving would be nearly one ton of fuel per annum or 70s. per annum. Assuming that such a saving could be offset against an increase in the capital cost of the house it would justify an additional capital cost of £80.* Even allowing for the fact that ventilation may be higher than that allowed for, and, as is suggested in the Egerton report, that it would be unreasonable to assume that the tenant would accept that the whole saving in fuel cost should be offset by an increase in rent, it is clear that improved standards of insulation are more than justified. Indeed, they have the additional merit of vastly improving the standards of comfort in the house in summer as well as in winter.


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# "THE NEW HOUSING TRAGEDY"

## STATEMENT BY SIR HARRY SELLEY

"THERE must be more plain speaking about the nation's housing programme," writes SIR HARRY SELLEY, J.P., National President, Federation of Master Builders, in a statement on housing.

"It is my opinion that we are now heading fast towards what is, in effect, a national disaster. Month by month, as the Minister of Health, Mr. Aneurin Bevan, issues his returns of houses and shacks completed or under construction, the story told becomes more and more depressing. Through the thick haze of chaos and confusion, shufflings and broken promises, the main fact which emerges in the last Ministerial report is that the total number of houses completed in July, best building month of the year, was— :

| | |
|---|---|
| Permanent Houses ... ... | 5,109 |
| Temporary Houses ... ... | 5,286 |

"This brings the total number of permanent houses built throughout the country since April, 1945, to 20,027, and of shacks erected to 40,425. It is apparent that of the figure of 40,425, thousands of those so-called temporary houses remain unoccupied, and in many cases have been for some months, for the want of internal fitments and fittings. It appears to me that the erection of a shell of a temporary house is claimed by the Minister as another house built. Free enterprise, despite restrictions which border on the fantastic and the diversion of so much essential material into other channels, is still, the

* With interest at 3½ per cent., every addition of £1 to the capital cost increases the interest and amortisation charge by about 9½d. per annum.

figures show, completing permanent houses at the rate of two to one as against local authorities' efforts—and it is these local authorities who are being given all the facilities. I call attention to these facts again because the country must now shape up fairly and squarely to what they really mean.

"Think carefully about these figures for the whole of Britain and you will realise that no real attempt whatsoever is being made to build or prepare homes for our people, of all classes, at the critical moment when the whole fabric of our national life is changing. Homes for the people is now the one key which will open the door to national prosperity. Every one of our great industries is appealing for workers. There are, at this very time, more than a million men and women, three-quarters of them newly released from the Services, ready and anxious to take up jobs if only they could find homes close to their work. Every main aspect of this need is being overlooked or disguised—sometimes I fear deliberately. No schemes to attract young men to the foundries and blast furnaces to help in the great iron and steel industries' reorganisation scheme can hope to succeed if no real attempt is made to find them proper places to live in with their wives and families.

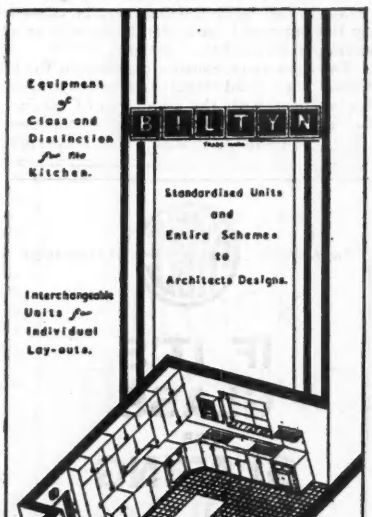
"Let us consider one instance—typical of many—agriculture, our oldest and most fundamental industry, which now could absorb another two hundred thousand workers. The position before the war was that probably only one person in ten was living in a house in the country built within the last 20 years. This low standard of accommodation was undoubtedly a strong contributory factor in the drift from the country to the towns, so evident at that time. We are witnessing a recurrence of that drift, which is a much more serious matter now than it was then. This tendency, therefore, must be curbed at all costs, which at a guess will necessitate a minimum of 300,000 new houses, with at least 100,000 in the first two or three years. Yet in the House of Commons on July 26 Captain Crookshank said: "In the great county of Lincolnshire not one permanent house has been completed by any local authority. Such is the record of our principal building source, in one of our biggest agricultural counties, and practically the same story is true of the other counties.

"Furthermore, more than 1,000 of the 1,469 local authorities in England and Wales have not completed one permanent house since the end of the war, and it is understood that the next progress report will show a blank record for about four-fifths of the country. How can we hope to get our 100,000 rural houses in two or three years at this rate of progress? New houses, however, are only one side of the matter. We cannot possibly re-house in new houses all the existing agricultural workers, not to mention the many thousands engaged in industries ancillary to agriculture. In short, reconditioning on a large scale in conjunction with new building is essential. Here again the Government have been entirely consistent with their negative policy of restriction by intentionally dropping the Housing (Rural Workers) Act.

"We have concrete evidence that the housing position is affecting agriculture, from the disappointing numbers of those taking part in the Government's agricultural training scheme. Up to July 29, of 4,367 applications received, only 2,648 have been placed on training farms. The Training Scheme will continue to disappoint, and we shall not get the workers until the Government cease to be negative, and adopt a positive policy of encouragement for the private builder.

"The same story of industry being hampered by lack of houses, and by a policy of obstruction, can be told throughout the whole of industry. Another tale is the case of the Great Western Railway, in its efforts to house thousands of its staff. Here there has been a clash with the local authorities, who are to be the principal builders of houses. At Plymouth the company had agreed to buy land from the Corporation for 160 houses; all was settled when the Corporation suddenly decided not to dispose of it. Another local council told the company that land which had been acquired specifically for houses was now required for public purposes, and the Ealing Borough Council approved plans for the development of a site owned by the G.W.R., but declined to recommend financial assistance under the Housing Acts, in a case where all the houses were needed for the Company's staff. The G.W.R. pointed out that since 1923 it had built or assisted in building 1,646 houses, but concluded on a note of despair that if its present efforts were nullified, it could only add to the burden of the local authorities. This is the treatment meted out by the Government to one of its primary nationalised industries.

"The success of the schemes to rehabilitate and improve the nation's industries so that we can compete successfully in the markets of the world depends on creating good homes for the workers near the places where they work. While the Government continues its stranglehold on free enterprise, withholds materials to carry out its own niggling schemes, the whole industrial future and, indeed, the very life of the nation, is in jeopardy."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# THE SCOTTISH BUILDER

## NEW BUILDINGS

**Bellshill.**—Lanarkshire C.C. to erect five apartment houses. Architect: Mr. Samuel MacColl, Albert-st., Motherwell.

**Carluke.**—Plans prepared for dining department, etc.; the Higher Grade school. Architect: Mr. William Watt, Albert-st., Motherwell.

**Glasgow.**—Alterations are to be carried out at Kinaller-st., by Messrs. Alexander Massey & Sons, 90, Hydepark-st., Glasgow.

**Glasgow.**—The Dean of Guild Court has granted permission to the Corporation Housing Department to erect 500 concrete houses, Colston-rd., Bishopbriggs.

**Glasgow.**—Plans prepared for additions at Berkley-st., for Messrs. T. Stanley Weston & Co., Ltd. Messrs. Burnet & Boston, 180, Hope-st., Glasgow, architects.

**Glasgow.**—Plans prepared for reconstruction of 36 to 42 Arlington, for Messrs. J. & J. Young, Ltd. Mr. John D. M. Thomson, 5, Woodside-quadrant, Glasgow, architect.

**Glasgow.**—Plans prepared for new offices, etc., for Gilmour & Arthur, Ltd., at Pollockshaws. Messrs. James Taylor Thomson & MacCrae, 212, Bath-st., Glasgow, are the architects.

**Greenock.**—Corporation, from plans by the Master of Works, have a £12,000 scheme of Factors Offices contemplated.

**Hillington.**—Plans in hand for new factory, etc., for which the architects are Messrs. Wylie, Shanks & Wylie, 204, West Regent-st., Glasgow.

**Paisley.**—The Dean of Guild Court has granted permission to the Scottish Orlit Co., Ltd., to make additions to new works, Renfrew-rd. The additions comprise the erection of two additional casting shops, a canteen, and an aggregate store. The works will be engaged in the manufacture of prefabricated permanent houses.

**Ringside.**—New housing scheme for Douglas Water Co-operative Society, Ltd., for which the architects are Messrs. Whyte & Barrie, High-st., Lanark.

**Stepps.**—Plans prepared for housing scheme at Whitehall Farm Area and Victoria-rd. Architect: Mr. F. MacDonald, 15, Whitehall-av., Stepps.

# FUTURE CONSTRUCTION

## CONTRACTS OPEN

**For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.**

### BUILDING

#### SEPTEMBER 18.

†**Bristol T.C.**—Alterations and additions to "O" Ward at Southmead Hospital. J. Nelson Meredith (F.), City A. Dep. £2.

†**Bromley T.C.**—Conversion of "Orford House," Springfield-rd., Bickley, into flats. B.E.

†***Stockport E.C.**—Erection of Junior and Infants' School at Broadstone Hall-rd. Director of Education. Dep. £3 3s. Tenders by October 5.

#### SEPTEMBER 21.

†***Beds C.C.**—Erection of Nurses' Home adjoining St. Andrew's Hospital, London-rd., Biggleswade. County A.

**Bishop Auckland U.D.C.**—Retaining wall of Larssen Piling and re-erecting footbridge. J. Ford, 50, North Bondgate, Bishop Auckland. Dep. £2.

***King's Lynn.**—Erection of maternity dept. for West Norfolk and King's Lynn General Hospital. D. H. Loukes, F.R.I.B.A., 44a, Sidney-st., Cambridge. Dep. £2 2s

**Weston-super-Mare.**—50 houses. Bournville estate, No. 8. H. E. Lloyd, A.M.I.C.E., B.E. Dep. £3 3s.

#### SEPTEMBER 23.

***Brentford and Chiswick T.C.**—Conversion of Grosvenor House, Chiswick-la., into 6 s.c. flats. B.E. and S. Dep. £2 2s.

***Buckingham R.D.C.**—Erection of 53 houses. Scherrer and Hicks (FF.), 310, Upper Regent-st., London, W.1. Dep. £2 2s.

**Cuckfield R.D.C.**—Erection of 2 Airey houses. E. and S. Dep. £2 2s.

**Felling U.D.C.**—42 houses, Stone-st., Windy Nook. C.

**Hailsham R.D.C.**—8 houses, Hellingly; 14 houses, Westham. E. and S. Dep. £2 2s.

**Haslemere U.D.C.**—4 blocks of 4 houses at Sicklemill Hanger. C. Dep. £3 3s.

**Henley R.D.C.**—36 houses, various types at 3 sites. C. Dep. £3 3s.

***Hornsey T.C.**—18 flats, Crescent-rd. J. H. Melville Richards, B.E. and S. Dep. £2.

**Hove T.C.**—100 houses at Sunninghill. B.S. Dep. £3 3s.

†**Little Lever U.D.C.**—48 houses, 16 bungalows, Mytham-rd. estate, Bolton. Bradshaw

Gass and Hope, architects, 19, Silver-st., Bolton. Dep. £1 1s. Tenders by October 14.

**Tenby T.C.**—30 houses at Old Rectory site. B.S. Dep. £2 2s.

**Wakefield T.C.**—Alterations at Flanshaw Lodge, Flanshaw-la. C.E., Wakefield.

**SEPTEMBER 24.**

**Croydon C.B.**—War damage repairs at Norbury Manor School. Ed. Officer, Katharine-st. Dep. £1.

**Derbyshire C.C.**—Alterations, Walton Sanatorium, nr. Chesterfield. C.A. Dep. £2 2s.

**Ely U.D.C.**—52 houses at St. John's-rd. E. and S. Dep. £2 2s.

**Fareham U.D.C.**—64 houses at 3 sites. E. and S. Dep. £2 2s.

**Isle of Wight R.D.C.**—3 pairs of houses at Calbourne. E. L. Smith and Son (L. and A.), High-st., Sandown, I. of W. Dep. £2 2s.

**Luton.**—Alterations to Police Station. B.E. Dep. £2 2s.

**Seisdon R.D.C.**—20 houses on four sites. F. Bagley, S., Council Offices, Wombourn. Dep. £2 2s

**Sunderland C.B.**—8 shops and flats, 12 lock-up garages and 2 public conveniences at Springwell Farm estate. B.E. Dep. £2 2s.

**Uxbridge U.D.C.**—132 houses at Violet Farm, Hillingdon (1st section). Wm. L. Eves (F.), 54, High-st., Uxbridge. Dep. £2 2s.

**Weston-super-Mare T.C.**—50 houses at Bournville estate, No. 8. H. L. Lloyd, A.M.I.C.E., B.E. Dep. £3 3s.

**Wilmslow U.D.C.** — Conversion of college houses, Alderley-rd., into 6 flats. C.

**SEPTEMBER 25.**

**Cheadle R.D.C.**—14 houses, Wetley Rocks housing site. E. and S. Dep. £3 3s.

**Doncaster C.B.**—36 houses, Wheatley Park estate. Estates S., 15, South Parade. Dep. £3 3s

†***Hartismere R.D.C.**—68 houses on five sites. Leslie Barefoot (A.), The Thorofare, Ipswich. Dep. £2 2s.

**Northwich R.D.C.**—Roads and sewers, Moulton housing scheme. E. and S. Dep. £2 2s.

**Skipton R.D.C.**—6 houses, Crosshills-rd. site, Cononley. E. and S. Dep. £2 2s.

**SEPTEMBER 26.**

***Leamington Spa T.C.**—100 houses at Kingsway estate. H. Fedeski (A.), Director of Housing. Dep. £2 2s.

†***West Sussex C.C.**—Conversion of No. 1, Whyke-rd., Chichester, into 3 flats. F. R. Steele (F.), County A. Dep. £2 2s. Tenders by October 15

**Yeovil R.D.C.** — 22 houses at Martock, together with incidental site works. Petter, Warren and Roydon Cooper (F.F.), The Old Oxford Inn, West Hendford, Yeovil. Dep. £3 3s.

**SEPTEMBER 27.**

***Canterbury T.C.**—School classroom block and kitchen-dining room block at Technical Institute. City A. Dep. £2 2s.

***West Sussex C.C.**—Conversion of three emergency huts at Horsham Institution to form Junior Technical School for Building. F. R. Steele (F.), County A. Dep. £2 2s. Tenders by October 25.

**SEPTEMBER 28.**

†**Amblecote U.D.C.**—46 houses with roads and sewers adjacent to Vicarage-rd. and Corbett-cres. H. Piper, C.

†***Gloucestershire C.C.**—Erection of Almondsbury, Patchway, infants' school for E.C. C.A., Shire Hall, Gloucester. Dep. £2 2s.

**Longendale U.D.C.**—16 houses at Broadbottom and 30 at Hollingworth. W. Dobson, Chapman and Partners, Jordangate, Macclesfield. Dep. £1 1s.

**Monmouth B.C.**—50 houses, Wyesham housing estate. B.S. Dep. £2 2s.

**Wakefield T.C.**—68 houses at Flanshaw estate. City E. and S. Dep. £2 2s.

**Watford R.D.C.**—Two pairs of "D"-type Swedish houses at Dawes-la. Council Offices. Dep. £1 1s.

**SEPTEMBER 30.**

**Cardigan B.C.**—38 houses, Greenfield-row. Howard Williams and Partners, architects, "Graystones," Priory-st., Cardigan. Dep £3 3s

**Chester T.C.**—148 houses at Blacon-ave. and Saughall-dr., Blacon. City E. and S. Dep. £2 2s.

**South Molton R.D.C.**—8 houses, Brayford. A. G. Oxland, 8, East-st. Dep. £2 2s.

**Southwell R.D.C.**—36 houses at Westgate. S. Cooper Housing A. and S. Dep. £2 2s.

**Tain T.C.**—Work in various trades for 26 five-apartment houses at Glebe site. A. W. Gray, T.C.

**Wallasey C.B.**—94 houses (Contract B), 65 houses (Contract C), Leasowe estate, Moreton. B.E. Dep. £2 2s.

†**Wandsworth B.C.**—Erection of houses. H. W. Tee, M.Inst.C.E., B.E. and Architect.

**Worcs. C.C.**—24 police houses and ancillary buildings. S. N. Cooke, Architect, Sun-bldgs., Bennett's Hill, Birmingham 2, or County A. Dep. £2 2s.

**OCTOBER 1.**

**Queensbury (West Riding C.C.).**—Completion of Modern School. County A., County Hall, Wakefield.

**Warwick C.C.**—26 police houses in various areas. Architect to Standing Joint Committee. Shire Hall. Dep. £2 2s.

†***West Sussex C.C.**—Canteen kitchen and dining-room at High School for Girls, Worthing. F. R. Steele (F.), County A. Dep. £2 2s. Tenders by October 29.

**OCTOBER 3.**

**Andover T.C.**—32 houses at Old Down site. B.S. Dep. £2 2s.

†**Poplar T.C.**—48 flats at Abbott-rd. B.E. and S. Dep. £2 2s. Tenders by October 17.

**OCTOBER 4.**

**Norfolk E.C.**—Erection of prefabricated hut comprising two library rooms, public issuing space and offices, etc., adjacent to Modern Secondary School at Fakenham. F. G. Limmer (F.), Ed. Architect. Dep. £2 2s.

**Norfolk E.C.**—Erection of prefabricated hut comprising kitchen and dining room at Diss Secondary School. F. G. Limmer (F.), Ed. Architect. Dep. £2 2s.

**OCTOBER 5.**

†***Bethnal Green T.C.**—50 flats at Sceptre-rd. B.E. and S. Dep. £2 2s. Tenders by October 21.

**OCTOBER 7.**

**Bathavon R.D.C.**—16 dwellings, Freshford. Grayson and Goldsmith (F.A.), 7, Bridge-st., Bath. Dep. £2 2s.

***Great Yarmouth T.C.**—28 houses, Magdalen College estate, Gorleston. B.E.

***Richmond T.C.**—24 houses at Lammas-rd., Ham. B.E. Dep. £3 3s.

**Sutton-in-Ashfield U.D.C.**—80 houses at Healswood estate. Warner and Dean, Housing Architects, Mansfield-rd., Sutton-in-Ashfield. Dep. £2 2s.

**Sutton-in-Ashfield U.D.C.**—54 houses at Huthwaite (Station-rd.) estate. Warner and Dean, Housing Architects, Mansfield-rd., Sutton-in-Ashfield. Dep. £2 2s.

**Weobley R.D.C.**—14 houses, Weobley. C. G. Williams, Hereford-rd., Weobley. Dep. £2 2s.

**OCTOBER 9.**

***Manchester T.C.**—168 flats Collyhurst Clearance Area. Housing Dept. Dep. £3 3s.

**OCTOBER 16.**

***Hornchurch U.D.C.**—20 houses at Hacton Farm estate. S. Dep. £1 1s.

**OCTOBER 21.**

***Wallasey C.B.**—Erection of 2 M.O.W. standard prefabricated huts at St. George's-rd. school. D. of E. Dep. £2 2s.

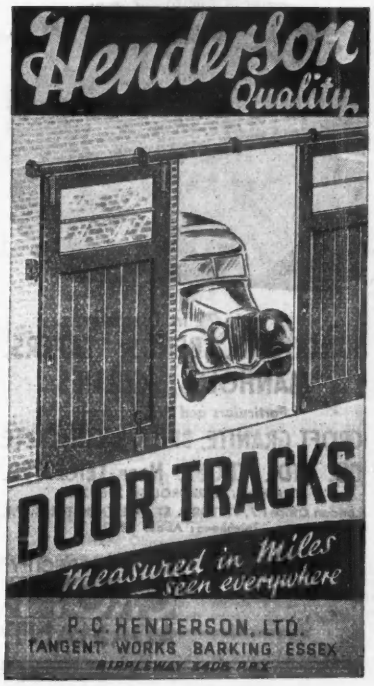
**NO DATE.**

***Epping R.D.C.**—Erection of 32 Airey houses, roads and sewers, Roydon. Messrs. Tooley and Foster, Midland Bank-chbrs., Buckhurst-hill, architects. Dep. £2 2s.

## MISCELLANEOUS

**SEPTEMBER 21.**

**West Lothian C.C.**—Demolition of shelters, Bo'ness. County Clerk, County-bldgs., Linlithgow.




**SEPTEMBER 23.**

**Darlield U.D.C.**—Demolition of approx. 180 shelters. S.

**Wembley B.C.**—Culverting of Wembley Brook. Boro' Treasurer. Dep. £1 1s.

**OCTOBER 1.**

**Manchester C.C.**—Removal of air raid precautions and reinstatement Hulme Library. C.A. Dep. £1 1s.

**Manchester C.C.**—Taking down air raid precautions and reinstatement of Cheetham Town Hall and Library. C.A. Dep. £1 1s.

**OCTOBER 4.**

**Penarth U.D.C.**—Demolition of shelters. E. and S. Dep. £1 1s.

## PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

**SEPTEMBER 23.**

**Soke and Peterborough C.C.**—Painting and decorating "The Gables" Maternity Home. County S. Dep. £2 2s.

**SEPTEMBER 28.**

**Cookham R.D.C.**—Painting exterior and part interior Council Offices. S.

**SEPTEMBER 30.**

***Bromley B.C.**—External painting, Hayes Primary School. B.E. Dep. £1 1s.

**Tain T.C.**—Various works in connection with erection of 26 houses, Glebe site. Alex Ross and Son (F.), 28, Queensgate, Inverness.

**OCTOBER 8.**

**Harpenden U.D.C.**—Painting of public hall and four houses. H. E. Stopher, E. and S., Harpenden Hall. Dep. £1 1s.

## ROADS, SEWERAGE AND WATER WORKS

**SEPTEMBER 21.**

**Penarth U.D.C.** — 3,800 sq. yds. concrete carriageway; 2,400 yds. sewers and drains, Wordsworth-ave. E. and S.

**SEPTEMBER 23.**

**Brynmawr U.D.C.**—Construction of roads, sewers, etc., County School site. S. Dep. £2 2s.

**Camberwell B.C.**—Construction of approx. 580 lin. yds. of 42 in. by 28 in. reinforced concrete sewer, etc., between Dog Kennel Hill and Green Dale. B.E. and S. Dep. £2 2s.

**Doncaster C.B.**—250 lin. yds. of roads, Housing Site No. 8a, Sandringham-rd. Est. S., 15, South Parade. Dep. £3 3s.

**Finchley T.C.**—Reconstruction of (a) Soil sewers, and (b) surface water sewers. E. and S. Dep. £2.

**West Dean R.D.C.**—Provision, laying, jointing 2,040 lin. yds. 6-in. water mains and construction of 625 yds. pipe sewers. C. Dep. £5 5s.

**SEPTEMBER 24.**

**Kingston-upon-Hull T.C.**—Construction of approx. 2,600 lin. yds. of brick and concrete sewer. Wm. Morris, City E. Dep. £10.

**Southwick U.D.C.**—Roads and sewers at Manor Hall-rd. E. and S. Dep. £3 3s.

**Stourport-on-Severn U.D.C.**—Reconstruction of section of Lickhill-rd. S.

**SEPTEMBER 25.**

**Wisbech R.D.C.**—Roads, footpaths and laying of surface water drains at 8 sites. E. A. Brown, Architect, Council Offices.

**SEPTEMBER 27.**

**Kidderminster T.C.**—Roads and sewers at Birchen Coppice estate. B.E. and S. Dep £2 2s.

**Kidderminster B.C.**—Preparation of housing sites, Birchen Coppice estate. B.E. and S., 110, Mill-st., Kidderminster. Dep. £2 2s.

**Wolverhampton C.B.**—Preparation of housing sites. B.E., Town Hall. Dep. £2 2s.

**SEPTEMBER 28.**

**Godalming T.C.**—Roads and sewers at Aarons Hill estate. B.E. and S. Dep. £2 2s.

**Rotherham R.D.C.**—Roads and sewers, Well-la., Treeton. Lawton, Knight and Co., 1-3, College-st., Rotherham. Dep. £2 2s.

**SEPTEMBER 30.**

**Acton T.C.**—Reconstruction of portion of North Acton-rd. and Chase-rd. B.E. Dep £2 2s.

**Fleet U.D.C.**—Construction of approx. 2½ miles of iron and stoneware sewers, 8 in.-10 in. dia., etc. S. Dep. £2.

†**Kettering T.C.**—Construction of sewerage and sewage disposal works. D. Balfour and Sons, Consulting E., 47, Victoria-st., S.W.1. Dep. £10.

**Kingston-upon-Thames R.B.** — Resurfacing Clarence-st. B.S. Dep. £2 2s.

**OCTOBER 1.**

**Doncaster C.B.**—Construction of concrete reservoir, etc. Water E., 2, Priory-pl. Dep. £5 5s.

**OCTOBER 2.**

**High Wycombe T.C.**—Laying 900 lin. yds. stoneware pipes with 1,400 lin. yds. connections, Totteridge. B.E. and S. Dep. £2.

**Shardlow R.D.C.**—Supply and laying 3,630 yds. 9-in. concrete lined iron pipes between Borrow Marsh, Elvaston and Thulston, and other works. Elliott and Brown, Stanley House, Pelham-rd., Nottingham. Dep. £3 3s.

**OCTOBER 3.**

**Staffordshire C.C.**—Construction of by-pass at Stone. County S., Stafford. Dep. £10.

**OCTOBER 4.**

**Bristol C.C.**—Preparation of housing sites (Contract No. 6), roads and sewers. H. M. Webb, C.E., 7, College Fields, Clifton, Bristol, 8. Dep. £2 2s.

**OCTOBER 5.**

**Stroud District Water Board.**—Contract 1, Providing and laying of approx. 14 miles of 6 in., 4 in. and 3 in. dia. spun-iron mains and construction of reinforced concrete reservoir; Contract 2, providing and laying of approx. 5½ miles of 4 in. and 3 in. dia. spun-iron mains. Alan N. Peters, A.M.Inst.C.E., E. and Manager, 1, Rowcroft, Stroud, Glos. Dep. £2.

**OCTOBER 7.**

**Daventry R.D.C.**—Main drainage, Braunston. Pick, Everard, Keay and Gimson, 6, Millstone-la., Leicester. Dep. £2 2s.

**Hertford T.C.**—Construction of 3 sludge digestion tanks, etc. B.S. Dep. £5 5s.

**NO DATE.**

**Cambridge T.C.**—Site preparation works, Newmarket-rd. site. B.S., Guildhall, Cambridge Dep. £3 3s.

## PUBLIC APPOINTMENTS

*Full details of Public Appointments marked * are advertised elsewhere in this issue. Those marked † have been advertised in previous issues.*

**SEPTEMBER 20.**

***Cudworth U.D.C.**—Clerk of Works.

***Derbys C.C.**—Senior Assistant Architect.

**SEPTEMBER 23.**

***Banstead U.D.C.**—(a) Assistant Architect; (b) General Architectural Assistant; (c) Tracer; (d) Planning Assistant.

***Barking C.B.**—General Foreman.

**†Cheshire C.C.**—Quantity Surveyor.

**†Durham C.C.** — Architectural Assistants; Technical Assistants; Assistant Quantity Surveyors; Assistant Clerk of Works.

**†Durham C.C.**—General Foreman Painter; Wages and Materials Clerk.

***Hayes and Harlington U.D.C.**—Architect.

***Lindsey (Lincs) C.C.**—(a) Senior Quantity Surveyor; (b) Chief Clerk.

**†Mansfield T.C.**—(a) Additional Clerk of Works; (b) Building Manager.

**SEPTEMBER 24.**

***Leicester T.C.**—Clerk of Works.

***Marlow U.D.C.**—Temp. Clerk of Works.

**SEPTEMBER 26.**

**†Darlington C.B.**—Architectural Assistant.

**SEPTEMBER 27.**

***Canterbury T.C.**—Clerk of Works.

**†Coventry T.C.**—Quantity Surveyors, Assistant Quantity Surveyors.

**†Portsmouth Electricity Service.** — Civil Engineering Assistant.

***Walthamstow T.C.** — Assistant Clerk of Works

**†Yeovil and District Joint Town Planning Committee.**—Town Planning Officer.

**SEPTEMBER 28.**

***Dartford T.C.** — Junior Architectural Assistant.

**†Fife C.C.**—Planning Assistant, Architectural Assistant.

**SEPTEMBER 30.**

***Brighton C.B.**—(a) Two Architectural Assistants; (b) Technical Assistant.

***Enfield U.D.C.**—Clerk of Works (Temp.).

***Ipswich C.B.**—Senior Architectural Assistant in Boro Surveyor's Dept. E. McLauchlan, B.S.

***Lancs C.C.**—Assistant Quantity Surveyors.

***Liverpool T.C.**—(a) Two Quantity Surveyors; (b) Assistant Architect.

***Newport (Mon.) C.B.**—3 Senior Assistant Architects for Housing Work and 2 Senior Assistant Architects mainly for Education work. Johnson Blackett, Borough Architect.

**†Radnorshire E.C.**—Assistant Architect.

**†St. Pancras B.C.** — 6 Housing Estate Managers.

***Special Scottish Housing Association.**—(1) 1 Surveyor; 12 Assistant Surveyors; 4 Junior Assistants; 24 Chairmen; (2) 10 Assistant Architects, 5 Assistant Architects, 4 Building Inspectors, 4 Tracers; (3) 1 Engineer, 4 Assistant Engineers, 2 Tracers; (4) Estimator, Assistant Estimator, 2 Quantity Surveyors; (5) 2 Technical Progress Assistants; (6) Manager; (7) Manager; (8) Manager; (9) Manager and Assistant Managers, Clerk of Works; (10) Costing Clerk, 2 Invoice Clerks, 3 Wages Clerks, Comptometer Operator.

**†Southern Rhodesia.** — Quantity Surveyor, P.W.D., Salisbury.

**†Wallasey C.B.**—Clerk of Works.

***West Ham C.B.** — Senior Architectural Assistant; Architectural Assistant; Senior Town Planning Assistant and Town Planning Assistant. E. E. King, Town Clerk.

**Wrexham B.C.** — (a) Senior Engineering Assistant; (b) Planning Assistant; (c) Engineering Assistant.

**OCTOBER 1.**

**†Paddington B.C.** — Surveying Assistant (Temp.).

**OCTOBER 5.**

***Oxford T.C.**—Senior Assistant.

***Sedgley U.D.C.**—Housing Foreman. K. R. F. Newton, Clerk.

**†Twickenham T.C.**—(a) Property Manager; (b) Assistant Building Inspector.

**OCTOBER 7.**

***St. Helens C.B.** — Chief Architectural Assistant.

**OCTOBER 14.**

***Chesterfield R.D.C.**—Building Inspector.

**†Corporation of London.**— Temp. Town Planning Assistants.

**NO DATE.**

***Crown Agents for the Colonies (Government of Zanzibar Development Authority).**—Supervisor of Works.

***L.C.C.**—(1) Quantity Surveyors and Assistants (Senior and Junior); (2) Architects, Building Surveyors, Technical Assistants (Architectural) and Junior Drawing Office Assistants; (3) Heating Engineers and Heating and Ventilating Assistants.

***Leeds College of Art.**—Head of School of Architecture.

***Ministry of Works.**—Architectural Assistants.

## GENERAL BUILDING WORK

**Alderley Edge.**—U.D.C. propose 12 flats, Bollin Field estate.

**Ashford.**—Derbyshire E.C. propose junior, infants' and nursery school, near Bakewell. Estimated cost, £17,000.

**Ashton-under-Lyne.**—T.C. propose 300 houses, Limehurst area.

**Atcham.**—R.D.C. propose 76 "Airey" houses on eight sites.

**Belper.**—U.D.C. propose houses on three sites. A. P. Taylor, housing architect.

**Blackpool.**—R. Fielding & Sons, builders, Stanhope-rd., propose 76 houses, Collins-av.

**Bolton.**—T.C. propose 94 houses, Lever Edge-la., and 55 on Eastfield.

**Bradford.**—E.C. propose school dining-room and kitchen, Lordsfield-pl.—T.C. approved cinema, Dudley Hill-rd., for Undercliffe Picture Co., Ltd.

**Burton-on-Trent.**—Parish Ch. Council propose rebuilding Friar's-walk school; estimated cost, £15,000.

**Chapel-en-le-Frith.**—R.D.C. propose houses on site off Ashbourne-land and old Laneway.

**Chesterfield.**—Board of Management of Royal Hospital, propose conversion of out-buildings at Ashgate House for occupational therapy centre.—R.D.C. propose houses on sites at Queen Victoria-rd., Tupton, and at Shirland and Higham.—38 houses at Mosborough, Houfton & Kington (L.), architects, Furnival-chbrs., 23a, Market-pl.

**Coventry.**—T.C. propose 1,000 "B.I.S.F." steel prefabricated houses.

**Durham.**—A scheme to extend the factory of Adams (Durham), Ltd., at a cost of £65,000, has been approved. Architect: E. M. Lawson, Barras-bldgs., Barras Bridge, Newcastle.

**Duston.**—R.C. authorities propose new catholic church.

**Flixton.**—Rev. W. Preston and Council of St. Michael's Church propose reconstruction of schools; estimated cost, £4,000.

**Garstang.**—Vicar and Council of St. Helen's Church, Churchtown, propose new Sunday-schools.

**Hampton-in-Arden.**—Trustees of Fentham Memorial Hall propose extensions; estimated to cost, £3,500.

**Hindley.**—U.D.C. propose 100 "B.I.S.F." houses, Castle Hill estate.

**Jarrow.**—T.C. to erect 418 houses, Bilton Hall estate, and 1,000 houses, Leam-la. H. W. T. Perkins, B.E.

**Leek.**—Rev. C. J. A. Payton and Council of All Saints' propose new Compton school, estimated cost, £8,000.

**Lleyn.**—R.D.C. propose houses at Rhosfan, Lithfaen, Trevor, and Pentrefelin.

**Macclesfield.**—T.C. propose 102 houses, Ivy-rd. estate.

**Manchester.**—T.C. approved rebuilding 144 and 146, Deansgate, British & Colonial Furniture Co., Ltd.—Alterations, 22, New Brown-st., Cawood, Dyson & Co.—Alterations to factory, Bombay-st., Writworth-st., J. F. Roberts, Ltd.

**Newcastle-on-Tyne.**—S. H. Lawson, Emerson-chbrs., Newcastle, is architect for offices and workshop at the Manors, for G. Sinclair and Sons.

**Northampton.**—R.D.C. propose 150 permanent houses.

**Redditch.**—U.D.C. propose 148 maisonettes, Salter's-la.

**Seaton Delaval.**—U.D.C. to convert hostel buildings at Cramlington into 104 houses. Plans by the council surveyor.

**Sheffield.**—Sheffield Diocestan Trust propose extensions, St. Paul's Church, Arbourthorne estate.

**Tyldesley.**—U.D.C. propose houses, Shakerley-la.—Lancashire C.C. propose branch library, Chaddock-la., Astley.

**Walton-le-Dale.**—U.D.C. propose 40 houses, Hennell-la. and 30 at Hoghton.—Houses at Bamber Bridge and Lostock Hall sites.

**Warrenpoint, Co. Down.**—Thompson & Norris Manufacturing Co., Ltd., of Brentford, are negotiating for site adjacent to G.N. Railway Depot, for factory.

**Wellington, Salop.**—C. R. Caxill propose houses on site adjoining Council's estate, Red House estate.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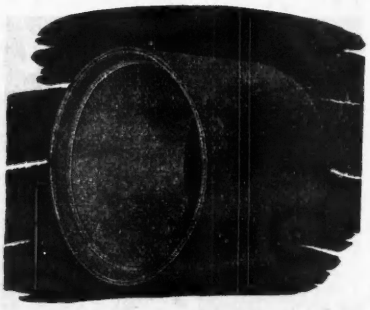

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## TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

**Ashton-under-Lyne.**—26 houses at Smallshaw-la., Lees-rd., and Beaufort-rd., for T.C. A. T. Kemp, B.S.: *N. Adams, Wellington-rd. (10); *W. Plant (10); *R. Buckley, Bangor-pl., Mossley-rd. (6); all of Ashton-under-Lyne. Total cost, £32,646.

**Banbury.**—50 "B.I.S.F." houses, Warwick-rd. estate, and 20 on Easington estate, for T.C.: *Harry Neal, Ltd., 117, Baker-st., W.1.

**Barnet.**—186 houses and 12 flats at Chesterfield estate, for U.D.C. E. Scott, E. & S. Quantities by Messrs. Young & Brown, High Holborn, W.C.: *The Henderson Building & Joinery Co., Ltd., 1 & 2, Warwick-rd., Elstree, Herts, £208,413.

**Bath.**—14 houses and eight flats at Moorlands estate; Contract No. 2, for T.C. J. Owens, M.Inst.M. & C.E., F.S.I., A.M.T.P.I., City E. & S. Quantities by W. Nixey: *Howell Bros., The Hollow, Bath. £25,467.

**Boldon.**—50 "B.I.S.F." houses, for U.D.C.: *Nox, Ltd., New Bond-st., London, W.1; 16 houses at Somers estate, on behalf of U.D.C.: *Gordon Durham & Co., Moor-la., East Boldon, Co. Durham.

**Boldon Colliery (Co. Durham).**—Rebuilding of war-damaged Methodist Church: *Gordon Bell, Viewforth-ter., Sunderland.

**Bradford.**—96 houses, for T.C.: *City Engineer, £114,576.

**Bradford-Melksham.**—Four houses, Wingfield, for Council: *A. Mortimer & Son, Broughton Gifford, £4,666 (subject to M.O.H. approval).

**Brixham.**—Four houses, Castor estate, for U.D.C.: *G. Cooksley & Sons, Brixham, £5,187 (subject to M.O.H.).

**Brixham.**—Four houses at Castor estate, for U.D.C.: *G. Cooksley & Sons, Brixham, £5,188.

**Burgess Hill.**—Roads and sewers, West Park housing site, for U.D.C.: *S. M. Tidy, Lewes-rd., Brighton, £8,319.

**Carmarthenshire.**—Factories at Ammanford and Tumble, near Llanelly. Sir Percy Thomas & Son, architects, 10, Cathedral-rd., Cardiff: *Isaac Jones (Llanelly), Ltd., Llanelly.

**Cheadle, Staffs.**—68 houses at Black-la., Frog-hall-rd. site, for R.D.C. J. W. Burton, S.: *R. J. Addison, The Spinney, Blythe Bridge, Stoke-on-Trent, £91,628.

**Colchester.**—Reservoir at Lexden, for T.C.: *George Wimpey & Co., Ltd., £12,570.

**Easington.**—50 temporary houses with roads and sewers: *R. G. Finlay, 28, West Sunniside, Sunderland.

**Eastbourne.**—Conversion of Y.M.C.A. premises, Yangney-rd., into 7 dwellings, for T.C.: *Direct labour, £2,802.

**Edmonton.**—Roads and sewers, Cuckoo Hall-la. estate, for T.C.: *Direct labour, £40,303 and £24,120, respectively. (Revised estimates approved by M.O.H.).

**Festiniog.**—10 houses at Fronfawr site, for U.D.C. Cynthia Wood and Ernest Jones, architects. *Renowned Contracting Co. (A. Ward), Dolwyddelen, Caerns., £10,250.

**Gateshead.**—Office block at Team Valley Trading estate. Architect: G. H. Gray, Camden-st., North Shields: *Gordon Durham & Co., Moor-la., East Boldon; factory at Team Valley estate, for Fancy & Crepe Paper Mills, Ltd. Architects: Page, Son & Hill, 75, King-st., South Shields: *W. Hall (Contractors), Ltd., Derwentwater-rd., Gateshead; factory at Team Valley estate. Architects: C. C. Spence & Roberts, Low Fell, Gateshead: *Wm. Hall (Contractors), Ltd., Derwentwater-rd., Gateshead.

**Glasgow.**—The following contractors tendered successfully for work as shewn in connection with the erection of 476 houses at Pollok (Section D—North-east and part North-west): Excavating, brick, etc., *A. M. Cochran & Co., Ltd., 173, St. Vincent-st., Glasgow, C.2. Carpentry, joinery, etc., *Modern Construction Co., Ltd., 96, West Regent-st., Glasgow, C.2. Composition flooring, *W. J. Wilson, 17, Fruin-rd., Drumchapel, Glasgow. Electrical, *R. J. Sinclair & Co. (Glasgow), Ltd., 173, St. Vincent-st., Glasgow, C.2. Glazing, *John Wilson & Sons, 519/525, St. George's-rd., Glasgow, C.3. Macadam roofing, *Potter, Cowan & Co., Ltd., 54, French-st., Glasgow, S.E. Painting, *A. Cooke, 67, High-st., Renfrew. Patent concrete floors, *Price and Co. (Glasgow), Ltd., Seaforth-rd., Hillington, Glasgow. Plastering, *Archibald McKellar, 73, Firhill-rd., Glasgow, N.W. Plumbing and gasfitting, *George T. Scott, 18, Seamore-st., Glasgow, C.2. Slating and roughcasting, *A. C. Whyte & Co., Ltd., 95, Bath-st., Glasgow, C.2. Steel windows, *Metal Casements, Ltd., Tantarra-st., Walsall. Tile fireplaces, *George T. Scott, 18, Seamore-st., Glasgow, N.W.

**Glasgow.**—The following contractors tendered successfully for work as shown in connection with the erection of 54 houses at Balornock and Robroyston: Excavating, brick, etc., carpentry, joinery, *William S. Gordon & Co., 104/106, Crow-rd., Glasgow, W.1. Composition flooring, *W. J. Wilson, 17, Fruin-rd., Drumchapel, Glasgow. Electrical, *Stewart Brothers, 16, George-st., Glasgow. Glazing, *John Wilson & Sons, 519/525, St. George's-rd., Glasgow, C.3. Painting, *Robert White & Son, 764, Springburn-rd., Glasgow, N. Patent concrete floors, *Price & Co. (Glasgow), Ltd., Seaforth-rd., Hillington, Glasgow. Plastering, *Archibald McKellar, 73, Firhill-rd., Glasgow, N.W. Plumbing and gasfitting, *George T. Scott, 18, Seamore-rd., Glasgow, N.W. Slating and roughcasting, *A. C. Whyte & Co., Ltd., 95, Bath-st., Glasgow, C.2. Steel windows, *Metal Casements, Ltd., Tantarra-st., Wallsall. Tile fireplaces, *George T. Scott, 18, Seamore-st., Glasgow, N.W.

**Glasgow.**—Successful tenders were submitted by the following contractors for work in connection with 1,072 houses to be erected at Pollok (Section D—North-west): Excavating, brick, etc., *A. M. Cochran & Co., Ltd., 173, St. Vincent-st., Glasgow, C.2. Carpentry, joinery, *J. Dow Stuart, Ltd., 106, Bath-st., Glasgow, C.2. Composition flooring, *W. J. Wilson, 17, Fruin-rd., Drumchapel, Glasgow. Electrical, *R. J. Sinclair & Co. (Glasgow), Ltd., 173, St. Vincent-st., Glasgow, C.2. Glazing, *John Wilson & Sons, 519/525, St. George's-rd., Glasgow, C.3. Macadam roofing, *Potter, Cowan & Co., Ltd., 54, French-st., Glasgow, S.E. Painting, *W. & P. Mackie, 24, Ann-st., Greenock. Patent concrete floors, *Price & Co. (Glasgow), Ltd., Seaforth-rd., Hillington, Glasgow. Plastering, *Archibald McKellar, 73, Firhill-rd., Glasgow, N.W. Plumbing and gasfitting, *George T. Scott, 18, Seamore-st., Glasgow, N.W. Slating and roughcasting, *A. C. Whyte & Co., Ltd., 95, Bath-st., Glasgow, C.2. Steel windows, *Metal Casements, Ltd., Tantarra-st., Wallsall. Tile fireplaces, *Geo. T. Scott, 18, Seamore-st., Glasgow, N.W.

**Glasgow.**—Successful tenders were submitted by the following contractors for work in connection with the erection of 132 houses at Pollok (South of Barrhead-rd.): Excavating, brick, carpentry and joinery, *William S. Gordon & Co., 104/106, Crow-rd., Glasgow, W.1. Composition flooring, *W. J. Wilson, 17, Fruin-rd., Drumchapel, Glasgow. Electrical, *Argyle Electrical Co., 1090, Argyle-st., Glasgow, C.3. Glazing, *William Purdon & Son, 223, Parliamentary-rd., Glasgow, C.4. Macadam roofing, *Potter, Cowan & Co., Ltd., 54, French-st., Glasgow, S.E. Painting, *A. Cooke, 67, High-st., Renfrew. Patent concrete floors, *Price & Co. (Glasgow), Ltd., Seaforth-rd., Hillington, Glasgow. Plastering, *Archibald McKellar, 73, Firhill-rd., Glasgow, N.W. Plumbing and gasfitting, *John Crawford & Co., 274/276, Lawmoor-st., Glasgow, C.5. Slating and roughcasting, *A. C. Whyte & Co., Ltd., 95, Bath-st., Glasgow, C.2. Steel windows, *Metal Casements, Ltd., Tantarra-st., Walsall. Tile fireplaces, *George T. Scott, 18, Seamore-st., Glasgow, N.W.

**Hendon.**—Work at Brent Cross Service Station for H. R. Owen, Ltd.: *Dunham, Builders, Ltd., 69, Victoria-st., St. Albans.

**Irthlingborough.**—96 Orlit houses, for U.D.C.: *W. Willett, Ltd., Sloane-sq., S.W.1. £1,226 each.

**L.C.C.**—Contract exceeding £2,500 in value placed by the L.C.C. during period ended September 4:—Erection of Blocks 1 (extension) and 2 of dwellings at Gascoyne estate, Hackney, Stewart & Partners, Ltd., 105, Baker-st., W.1.

**London.**—Renovations and decorations, Connaught Rooms, Great Queen-st., for the Directors. Architects: H. V. Ashley and Winton Newman, 3, Verulam-bldgs., Gray's Inn, W.C.: *Messrs. Richardson, 40-44, Station-rd., North Harrow.

**¶London (Air Ministry).**—The following contracts have been placed during the week ending September 7:—Re-waterproofing sheds, Macartney, Ltd., London, W.1. General maintenance work, Johnston and Gibson, Glasgow, C.3. Steel roofing work, Tees Side Bridge and Engineering Works, Ltd., Middlesbrough. Surfacing work, W. and J. Glossop, Ltd., Osbaldwick, York. Surfacing work, Associated Asphalte Co., Ltd., London, S.W.7. Heating and hot water installation, Z. D. Berry and Son, Ltd., London, S.W.1. Heating and hot water installation, Wm. Freer, Ltd., Leicester.

**¶London (M.o.W.).**—Contracts placed by the Ministry of Works during week ended September 5:—*London:* Buckingham Palace, sundry works, Higgs & Hill, Ltd., Crown Works, South Lambeth-rd., S.W.8. East Ham, Avenue sch., temp. sch. buildings, Robert Hart & Sons, Ltd., 121, Victoria-st., S.W.1. Brockley, Mantle-rd. sch., reinstatement, Halse & Sons, Ltd., 51, Chapel-hill, S.E.18. Kentish Town, N.W. Polytechnic, classrooms and canteen, Kent & Sussex Contractors, Ltd., Erith, Kent. *Buckinghamshire:* Stoke Poges council sch., sch. buildings, John Deverill, Ltd., 3, The Grove, Slough. *Cheshire:* Nantwich U.D.C. 2, site works and temp. Aluminium houses, J. T. Gresty & Son, Ltd., Willaston. Wallasey, St. Alban's R.C. sch., school, William Bradshaw (Contractors), Ltd., Poulton-rd., Wallasey. *Devon:* Torquay, Coombe Pafford, prep. of housing sites, Howard Farrow, Ltd., 18, Regent-st., Bristol. Barnstaple, Woodville Est., foundations, drains, paths, etc., W. Woolaway & Sons, Ltd., Bickington-rd., Barnstaple. *Dorsetshire:* Poole, Kemp Welch sen., sch., temp. sch. buildings, J. & J. Farneaux, Ltd., 251, Barrack-rd., Christchurch. *Durham:* Stanley U.D.C. 2, sites for 51 houses, Randle & Co., Ltd., Back Dunelm, Sunderland. *Kent:* Chislehurst, M/Supply garage, Lavender McMillan, Ltd., 54, Cheam Common-rd., Worcester Park, Surrey. *Lancashire:* Blackpool, Palatins tech. high sch., kitchen and dining-room, William Eaves & Co., Ltd., Dagger's Hall Works, Vicarage-la., South Shore, Blackpool. Manchester, Wythenshawe, foundations and site works, 236 houses, Cawood, Wharton & Co., Ltd., Doric Works, Ossett, Yorks. Oldham, Hollins sch., Lyndhurst-rd., temp. sch. buildings, Tinker & Young, Ltd., Monsall-st., Queen's-rd., Manchester. Rochdale, Heybrook sch., Park-rd., dining-room and kitchen, Thompson & Brierley, Ltd., Union Saw Mills, Boundary-st., Bury. Rochdale, Norden coun. sch., Shawfield-ln., dining-room and kitchen, Thompson & Brierley, Ltd., Union Saw Mills, Boundary-st., Bury. Manchester (Blackley), Crosslee mun. sch. (Victoria-ave.), dining-room and kitchen, H. & J. R. Bradshaw, Hill-ln., Blackley. Hollinwood, removal and reassembly of boiler-house plant, G. Dawson & Sons, 517, Chapel-st., Salford. *Lincolnshire:* Grantham, Ancaster C.E. sch., kitchen and dining-room, Bernard Pumfrey, Ltd., Wintern Works, Gainsborough. *Middlesex:* Feltham Hill prim. sch., kitchen and dining-room, Sloggets (Contractors), Ltd., 142/4, Cromwell-rd., S. Kensington, S.W.7. Enfield U.D.C., sites for 49 temp. Aluminium houses, Hubert C. Leach, 8/12, Southfield-rd., Waltham Cross, Herts. *Oxfordshire:* Banbury, M/F. cold store, erection of Romney huts, W. & A. Collisson, Brittania-rd., Banbury. *Ross-shire:* Rose and Cromarty, Plockton sch., kitchen and dining-room, N. Smart & Sons, 99, Kenneth-st., Inverness. *Surrey:* Woking, Kingfield county sec. sch., temporary sch. buildings, Smith Bros., Ltd., Claremont Works, West Byfleet. *Sussex:* Ringmer coun. sch., temp. sch. buildings, Eames & Calverly, Ltd., Ringmer. *Wiltshire:* Lackham Park Farm, alterations, W. E. Chivers & Sons, Ltd., Devizes, Wilts. *Yorkshire:* Leeds, Scarcroft Hosp., alterations, J. Pullan & Sons, Marley-terr., Leeds. Normanton, boys' high sch., kitchen, W. Barber, 52, Northgate, Pontefract. Normanton, girls' high sch., kitchen, W. Barber, 52, Northgate, Pontefract. Bradford, Wellington-rd. sch., dining-room and kitchen, Leedsford, Ltd., 14, Highfield-rd., Bradford.

**London (War Dept.).**—Works contracts placed by War Department during week ended August 31:—*Hampshire:* Road work, Taroads, Ltd., London, E.C.

**Looe.**—18 houses at Sunrising estate: *Looe District Builders' Association, £2,854 per pair (subject to M.H. approval).

**Luton.**—Roads and sewers, Farley Hill, for T.C.: *Percy Bilton (Roadways), Ltd., 113, Park-st., London, W.1, £225,705.

**Manchester.**—Additional flats at Hulme Clearance site, for T.C. L. C. Howitt (F.), City A.: *G. & J. Seddon, Ltd., 3-5, Manchester-rd. West, Little Hulton, nr. Bolton.

**Martley.**—14 houses at three sites, for R.D.C. C. T. Chadwick, S.: *J. Wood & Son (Worcester), Ltd., The Butts, Worcester, £23,719.

**Middleton.**—Additional 18 houses at Moorclose estate, for T.C. J. Pollard (L.), B.E. & A.: *Ashton-Smethurst, Ltd., Suffield-st., Middleton, Manchester, £18,743.

**Newcastle-on-Tyne.**—Additions for J. Sinclair & Co., Ltd. Plans by J. W. Taylor, Unionchbrs., Westgate-rd.: *J. Jackson & Sons, Corporation-st., Newcastle-on-Tyne.

**Newent.**—Four Swedish houses, for R.D.C.: *Wildsmith & Hurrell, Newent, £740 each.

**Norfolk.**—Police houses in 8 districts, for Standing Joint Committee. County A., 25, Thorpe-rd., Norwich. C. H. Thurston, L.R.I.B.A., P.A.S.I., County Architect, Norfolk. *Brockdish:* A. E. Strange, Brockdish, Norfolk, £1,425. *Hockham:* W. Peeke-Vout & Son, Watton, Norfolk, £1,375. *Necton:* O. Staines & Son, Swaffham, Norfolk, £1,349. *Roydon:* W. G. Youngs, Harleston, nr. Diss, £1,635. *Sporle:* O. Staines & Son, Swaffham, Norfolk, £1,380. *Weasenham:* Potter Bros., Toftwood, nr. E. Dereham, £1,592. *Whissonsett:* J. H. Neal, N. Elham, Norfolk, £1,557. *Gt. Bircham:* No tender accepted.

**Norwich.**—Roads and sewers, Earlham West Est., for C.C.: *Direct labour. Est. £72,193.

**Norwich.**—68 dwellings, for C.C.: *R. G. Carter, Ltd., Norwich, £55,297 (48); *John Cochrane & Sons, Ltd., 39, Victoria-st., S.W.1, £11,892 (16); and £18,073 (24).

**Oswestry.**—82 houses and 20 flats, Shrewsbury-rd. site, for T.C.: *Edward Gittens & Sons, Johnstown, Wrexham, £117,950.

**Poole.**—130 houses at Hamilton-rd. and Tucker's-la., for T.C.: *Crosby & Co., Ltd., £161,084.

**Rishton.**—28 houses at Sands estate, for U.D.C.: *Drake Bros. (Haslingden), Ltd., Holden Mill House, Haslingden, Rossendale.

**Rothwell.**—51 houses, for U.D.C.: *Parrott & Co. (14); *E. Appleyard & Sons, Ltd. (10); *A. Hanks (13); *Barker & Robinson (4); *H. Bennett (4); *J. Chapman & Son (Rothwell), Ltd. (6).

**St. Albans.**—Factory colour scheme decorations for James Forsyth (St. Albans), Ltd.: *Dunham Builders, Ltd., 69, Victoria-st., St. Albans.

**Salford.**—School at Cross-la., for E.C.: *R. Carlyle & Co., Ltd., Elsinore-rd., Old Trafford, Manchester 16.

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**Sandy.**—12 houses and 7 bungalows, for U.D.C. F. C. Levitt, Biggleswade, architect. Quantities by F. H. Wood, F.S.I. *Styles (Biggleswade), Ltd., Biggleswade, Beds., £22,323.


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**Scarborough.**—52 "B.I.S.F." houses at Barrowcliff estate, for T.C. H. V. Overfield, B.E.: *Higgs & Hill, Ltd., London, £68,224.

**Sheffield.**—Conversion of houses into four flats, for T.C. W. George Davies (F.), City A. 21. Southbourne-rd.: *Sam Bannister, 1, Gainsborough-rd., Broomhill 11, £2,496; 89-91, Upper Hanover-st.: *F. Clifton, £2,143.

**Sheffield.**—88 houses at Parson Cross estate, Building Scheme No. 6/2, for T.C. 78 houses: *Chaphall & Co., Ltd., Grenoside, and Bailey & Martyn, £95,588; 10 houses: *Redmile & Poole, £11,732 (all of Sheffield).

**Sheffield.**—180 houses, Parson Cross estate, for C.C.: *Maurice Kay, Ltd., £18,496 (16); *E. Close, £26,242 (22); *H. Dernie & Sons, £14,319 (12); *H. Vickers & Co., Ltd., £21,827 (18); *W. Tall, £9,316 (8); *D. Hurrell & Son, £11,771 (10); *J. W. Anson & Son, £13,879 (12); *Wigley & Son, £25,728 (22); *J. Hall & Co., £21,270 (18); *Seymour Bros., £18,605 (16); *Ackroyd & Abbott, £30,341 (26). All local firms. (Subject to M.O.H. approval.)

**Sheffield.**—244 houses at Parson Cross estate, Building Scheme 7/2, for T.C.: *W. Redmile & Son, Ltd., 29a, Cockshutt-dr., £53,084 (44); *J. W. Sivil, Ltd., 39, Canterbury-av. 8, £52,694 (44); *J. A. Belfit & Co., Ltd., £50,001 (42); *S. Mettam, 2, Long-la., Worrall, Oughtibridge, £44,663 (36); *J. H. Armitage & Sons, Ltd., 46, Spooner-rd., £26,112 (22); *C. Redmile, 11, Gleadless Common 2, £19,760 (16); *F. Ridal & Son, 8, Cobden View-rd. 10, £16,909 (14); *G. Madin, 36, Rupert-rd. 7, £16,661 (14); *H. Clarke & Co., Ltd., 5, Broxbourn-rd. 8, £15,319 (12). All of Sheffield. (Subject to M.O.H. approval.)

**Stratford-on-Avon.**—21 houses at Headland-rd., Welford-on-Avon, for R.D.C. F. W. B. Yorke and H.M. Barker, architects, 36, Calthorpe-rd., Edgbaston, Birmingham 15: *Douglas Ritchie, £27,087.

**Stroud.**—R.D.C. has accepted the offer of E. Fox (Builders), Ltd., to build 24 houses at Bridgend, Stonehouse, for sale to Council.

**Suffolk.**—Alterations at Wiston Hall, Mayland. Sir Patrick Abercrombie & Richard Nickson (FF.), architects: *Dunham Builders, Ltd., 69, Victoria-st., St. Albans,

**Swindon.**—Demolition of air-raid shelters, for T.C.: *Messrs. Clark Bros., Oxford-rd., Stratton St. Margaret, Swindon, £12,145.

**Tettenhall.**—Two blocks of four houses each at Henwood-rd., for U.D.C. J. W. Mason, S.: *George Wright & Co., Ltd., Wolverhampton, £10,900.

**Torquay.**—122 houses, Watcombe, for T.C.: *Staverton Builders, Ltd., Totnes, £152,136.

**Torrington.**—20 houses, Hatchmoor-rd., four in Stoneman's-la., and one pair in Calf-st., for T.C.: *A. Darch & Sons, Torrington, £32,882.

**Truro.**—16 houses, Mylor, for R.D.C.: *A. L. Eldridge, Falmouth, £1,290 each (subject to M.O.H. approval.)

**Urmston.**—28 houses at Lansdowne-rd., Flixton, Wallingford-rd., Davyhulme, and eight at Aldermere-cres., Flixton, for U.D.C. E. L. Leeming, E. & S.: *C. Jeffries, 3, Entwistle-av., Davyhulme, 21s. 8d. per sup. ft. (8); *A. Locke (1940), Ltd., Lostock-rd., Davyhulme, £1,050 each (12); *F. Parr, Flixton, 21s. 8d. per sup. ft. (8). All of Urmston.

**Walsall.**—Extensions to Beehive Works for Barton Conduits, Ltd.: *Wright, Anderson & Co., Ltd., Coulthard's-la., Gateshead, Newcastle-upon-Tyne.

**Wardle.**—162 houses and drainage at Ashbrook estate, for U.D.C. T. Wainwright (L.), Midland Bank-bldgs., St. Helens: *J. Gerrard & Sons, Ltd., Pendlebury-rd., Swinton, Manchester.

**Wenlock.**—24 houses with fencing, drainage, concrete paths, etc., also site works, for T.C. W. B. Bond, quantity surveyor, Colmore-chbrs., Newhall-st., Birmingham: ‡Purschause & Gregory, Ltd., Wednesfield, Staffs.

**Wombwell.**—Girls' Modern school, for E.C.: *H. Field & Son, Stairfoot, Barnsley.


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